AD-A286 194

AN

The Economic and Budget Outlook

UPDATE
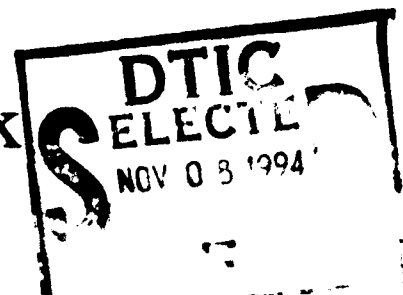
94 11 7 005

THE ECONOMIC AND BUDGET OUTLOOK:
AN UPDATE

A Report to the
Senate and House
Committees on the Budget

As Required by Public Law 93-344

The Congress of the United States
Congressional Budget Office

NOTES

Unless otherwise indicated, all years referred to in Chapter 1 are calendar years and all years in Chapter 2 are fiscal years.

Some figures in this report indicate periods of recession using shaded vertical bars. The bars extend from the peak to the trough of the recession.

Unemployment rates throughout the report are calculated on the basis of the civilian labor force.

Numbers in the text and tables of this report may not add to totals because of rounding.

National income and product account data shown in the tables do not incorporate the July 29, 1994, revisions, which did not significantly affect the economic outlook. The discussion in Chapter 1 does, however, take account of the revisions.

Preface

This volume is one of a series of reports on the state of the economy and the budget that the Congressional Budget Office (CBO) issues each year. It satisfies the requirement of section 202(f) of the Congressional Budget Act of 1974 for CBO to submit periodic reports to the Committees on the Budget with respect to fiscal policy. In accordance with CBO's mandate to provide objective and impartial analysis, the report contains no recommendations.

The analysis of the economic outlook presented in Chapter 1 was prepared by the Macroeconomic Analysis Division under the direction of Robert Dennis and John F. Peterson. Adrienne Kearney wrote the chapter, with contributions from Robert Arnold, Laurie Brown, Kim Kowalewski, Frank Russek, Jr., Matthew Salomon, and Christopher Williams. Matthew Salomon carried out the economic forecast and projections. Douglas Elmendorf, Victoria Farrell, Douglas Hamilton, Thomas Loo, Joyce Manchester, Angelo Mascaro, and John Sturrock provided comments and background analysis. Derek Briggs, Laurie Brown, Blake Mackey, John Romley, and Michael Simpson provided research assistance.

The baseline outlay projections were prepared by the staff of the Budget Analysis Division under the supervision of C.G. Nuckols, Paul N. Van de Water, Paul Cullinan, James Horney, Michael Miller, and Robert Sunshine. The revenue estimates were prepared by the staff of the Tax Analysis Division under the supervision of Rosemary Marcuss and Richard Kasten. Kathy A. Ruffing wrote Chapter 2 with contributions from Bryan Grote, Jeffrey Holland, and Richard Kasten. Matthew Salomon wrote Appendix A with Laurie Brown, and Robert Arnold wrote Appendix B. James Horney wrote the summary of the report.

An early version of the economic forecast underlying this report was discussed at a meeting of CBO's Panel of Economic Advisers. Members of this panel are Michael Boskin, Barry Bosworth, Robert Dederick, Martin Feldstein, Benjamin Friedman, Lyle E. Gramley, Robert Hall, Lawrence Klein, Robert Lawrence, John Makin, Burton Malkiel, Rudolph Penner, William Poole, Paul Samuelson, Charles Schultze, Robert Solow, James Tobin, Murray Weidenbaum, and Janet Yellen. Robert Gordon, Andrew Harless, James Medoff, Laurence Meyer, Michael Moran, and Edmund Phelps attended as guests. Although these outside advisers provided considerable assistance, this document does not necessarily reflect their views.

Paul L. Houts supervised the editing and production of the report, assisted by Sherry Snyder. Major portions were edited by Paul L. Houts, Sherry Snyder, Sherwood Kohn, and Christian Spoor, with the assistance of Leah Mazade. Laurie Brown prepared the graphics for Chapter 1 and Appendix B. Marion Curry, Dorothy Kornegay, Linda Lewis, and L. Rae Roy assisted in the preparation and production of the report. With the assistance of Martina Wojak-Piotrow, Kathryn Quattrone prepared the report for final publication.

<div style="text-align:center">

Robert D. Reischauer
Director

</div>

August 1994

Contents

TABLES

BOXES

Summary

The Congressional Budget Office (CBO) projects higher economic output and lower deficits in 1994 and 1995 than were anticipated last winter. In the longer run, however, there is little change in the expected levels of gross domestic product (GDP) or deficits. Based on strong economic growth since the third quarter of 1993 and an expected continuation of high levels of business investment and consumer spending, CBO has pushed its forecast of real growth in calendar year 1994 up to 3.6 percent--almost 1 percentage point higher than the previous forecast. In addition to swelling the forecast levels of GDP in 1994 and 1995, this unexpected growth has raised CBO's projections of interest rates and consumer prices throughout the projection period. It has not, however, significantly affected the estimate of potential GDP or the projection of GDP for 1999.

CBO's baseline deficits will fall to $202 billion in fiscal year 1994 and to $162 billion in 1995--respectively $26 billion and $17 billion lower than the winter baseline projections. Unfortunately, the short-term improvement in the deficit outlook does not signal any brightening of long-term deficit prospects. CBO still projects that the deficit will begin to grow again--slowly in 1996 and more rapidly at the end of the decade. By 1999, the deficit is expected to reach $231 billion, somewhat higher than the $213 billion projected in the winter. CBO's less detailed 10-year budget projections indicate that deficits will continue to grow after 1999, and there is no reason to believe that the trend will be reversed after 2004 under current laws and budgetary policies.

The Economic Outlook

CBO's economic forecast reflects higher growth in the short term than was envisioned in the winter forecast of *The Economic and Budget Outlook: Fiscal Years 1995-1999*, published in January 1994. This unexpectedly strong growth has pushed up anticipated interest rates and consumer prices but has had little effect on CBO's projection of the size of the economy in 1999, the last year of the projection period.

The Forecast for 1994 and 1995

CBO forecasts that real GDP will grow by 3.6 percent in 1994 and 2.7 percent in 1995, on a fourth-quarter-to-fourth-quarter basis (see Summary Table 1). The growth rate for 1994 is almost 1 percentage point higher than was anticipated last winter. The increase is prompted by the strong growth recorded since the third quarter of 1993 and CBO's assessment that the factors driving that surge--business investment in plant and equipment and consumer spending for such durable goods as automobiles--will continue to spur growth through the middle of 1995.

As a result of the rapid growth in 1994, CBO and most other economic forecasters agree that the GDP is near potential output (the level of real GDP that is consistent with a stable rate of inflation). The other forecasters are divided, however, over the

Summary Table 1.
Short-Term Economic Forecasts for 1994 and 1995

		Forecast	
	1993	1994	1995

Fourth Quarter to Fourth Quarter
(Percentage change)

	1993	1994	1995
Nominal GDP			
CBO summer	5.4	6.2	5.3
Administration	5.4	5.8	5.6
Blue Chip	5.4	5.9	5.8
CBO winter	4.9	5.7	5.4
Real GDP			
CBO summer	3.1	3.6	2.7
Administration	3.1	3.0	2.7
Blue Chip	3.1	3.1	2.6
CBO winter	2.3	2.8	2.7
Consumer Price Index[a]			
CBO summer	2.7	2.8	3.2
Administration	2.7	2.9	3.2
Blue Chip	2.7	2.8	3.4
CBO winter	2.7	2.9	3.0

Calendar Year Averages
(Percent)

	1993	1994	1995
Civilian Unemployment Rate[b]			
CBO summer	*6.8*	6.2	5.8
Administration	*6.8*	6.3	6.2
Blue Chip	*6.8*	6.3	6.0
CBO winter	*6.8*	6.6	6.4
Three-Month Treasury Bill Rate			
CBO summer	3.0	4.1	5.5
Administration	3.0	4.0	4.7
Blue Chip	3.0	4.0	4.8
CBO winter	3.0	3.5	4.3
Ten-Year Treasury Note Rate			
CBO summer	5.9	6.8	6.8
Administration	5.9	6.8	7.0
Blue Chip[c]	5.9	6.8	7.2
CBO winter	5.9	5.8	6.0

SOURCE: Congressional Budget Office; Office of Management and Budget, *Mid-Session Review of the 1995 Budget* (July 1994); Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators* (July 10, 1994).

a.   The consumer price index for all urban consumers.

b.   The Bureau of Labor Statistics changed the unemployment survey in January 1994. The CBO summer forecast for 1994 and 1995 uses the new survey method. The CBO winter forecast for those years has been adjusted upward by one-quarter of a percentage point to make the forecasts comparable. Data for 1993 (shown in italics) use pre-1994 methodology.

c.   *Blue Chip* does not project a 10-year note rate. The values shown here are based on the *Blue Chip* projection of the Aaa bond rate, adjusted by CBO to reflect the estimated spread between Aaa bonds and 10-year Treasury notes.

likely path of the economy from this point. Some anticipate that momentum will push actual GDP well above potential, triggering a big increase in inflation and a spike in short-term interest rates similar to that experienced at the end of every postwar expansion in the United States. Other forecasters believe that the growth of demand is already running out of steam and that GDP will settle into a path just below potential output without much further action by the Federal Reserve to raise short-term interest rates.

CBO's forecast charts a middle course. Real GDP barely exceeds potential output and by the end of 1995 is beginning to fall back. Interest rates on three-month Treasury bills are expected to increase from the unusually low rate of 3.0 percent in 1993 to 4.1 percent in 1994 and 5.5 percent in 1995. In the absence of any unanticipated supply shocks, the fourth-quarter-to-fourth-quarter increase in the consumer price index will grow from 2.7 percent in 1993 to 2.8 percent in 1994 and 3.2 percent in 1995. Although greater than anticipated in the winter, these increases in inflation and short-term interest rates are smaller than those experienced at the end of previous postwar expansions.

The Congressional Budget Office believes that the turbulence associated with mature expansions in the past is not likely to develop in 1994 and 1995 because of the moderate progression of the current expansion, early action by the Federal Reserve to restrain inflationary pressures, and the low probability of a significant supply shock (such as the oil price hikes that occurred as expansions were ending in the 1970s). The *Blue Chip* consensus of private forecasters and the Administration's July 1994 *Mid-Session Review* forecast also assume that the economy in 1994 and 1995 will not exhibit the spike in interest rates and in inflation associated with mature expansions in the past. In fact, they assume significantly lower real growth in 1994 and lower short-term interest rates in 1995 than does CBO--assumptions more in line with the smooth-landing scenario that predicts growth will gently level off near potential output.

The unemployment rate is a key variable in assessing the state of the economy, but current data on unemployment are difficult to interpret because

of a change in survey methodology introduced by the Bureau of Labor Statistics last January. Nonetheless, it is clear that unemployment has fallen faster than CBO anticipated last winter. The CBO forecast assumes that the unemployment rate will continue to fall--to 6.2 percent in 1994 and 5.8 percent in 1995 (based on the new methodology). At 5.8 percent, unemployment will be below CBO's current estimate of the nonaccelerating inflation rate of unemployment (NAIRU--the minimum rate of unemployment consistent with a stable rate of inflation). A projected unemployment rate lower than the NAIRU is one sign of the slow buildup of inflationary pressures that is reflected in the Congressional Budget Office's forecast.

Projections for 1996 Through 1999

The Congressional Budget Office does not attempt to forecast cyclical fluctuations in the economy more than two years into the future. Beyond two years, CBO projects a course for the economy that will bring GDP for the last year of the projection period (1999 in this case) to a level--consistent with the average historical relationship between actual and potential GDP--slightly below estimated potential output. The estimate of potential gross domestic product is based on an analysis of such fundamental factors as growth in the labor force, productivity, and national saving.

The increase in the growth forecast for 1994 did not cause CBO to change its winter estimate that potential GDP would grow at an average rate of 2.4 percent a year during the 1996-1999 projection period. It did, however, push the level of real GDP forecast for 1995--the starting point for the 1996-1999 projections--above potential. Therefore, in order to allow projected GDP to fall to its historical relationship with potential output in 1999, CBO reduced the projected average annual growth of real GDP between 1995 and 1999 from 2.6 percent to 2.2 percent (see Summary Table 2).

The projection assumes that the interest rate on three-month Treasury bills will fall from 5.5 percent in 1995 to 5.1 percent in 1996 and 4.9 percent for the rest of the projection period. The projected interest rate for 10-year Treasury notes is 6.5 per-

cent throughout the 1996-1999 period, down from 6.8 percent in 1995. Both the short- and long-term rates are somewhat higher than those projected in the winter. The annual increase in the consumer price index is expected to grow from 3.1 percent in 1995 to 3.4 percent a year after 1996, up from the peak rate of 3.1 percent in the winter projections. The unemployment rate is expected to increase slightly after 1995, leveling off at 6.1 percent in 1998 and 1999.

The Budget Outlook

The Congressional Budget Office projects that the deficit will fall faster in fiscal years 1994 and 1995

than was anticipated in the winter baseline, published as Appendix A in CBO's April 1994 report, *An Analysis of the President's Budgetary Proposals*. There is little change, however, in the long-term budget outlook; the deficit will still begin growing after 1995, and by 1999 the projected deficit will be slightly higher than had been estimated in the winter baseline.

The Outlook for the Deficit

CBO's baseline projections assume that the Congress makes no changes in current law and policies that affect tax revenues and mandatory spending. They also assume compliance with the discretionary spending limits set in the Budget Enforcement Act

Summary Table 2.
Medium-Term Economic Projections (By calendar year)

	Actual 1993	Forecast		Projected			
		1994	1995	1996	1997	1998	1999
Nominal GDP (Billions of dollars)	6,378	6,777	7,161	7,523	7,893	8,277	8,687
Real GDP (Billions of 1987 dollars)	5,136	5,343	5,505	5,635	5,756	5,878	6,009
Real GDP (Percentage change)	3.0	4.0	3.0	2.4	2.1	2.1	2.2
Implicit GDP Deflator (Percentage change)	2.5	2.2	2.5	2.6	2.7	2.7	2.7
CPI-U (Percentage change)	3.0	2.6	3.1	3.3	3.4	3.4	3.4
Unemployment Rate (Percent)	6.8	6.2	5.8	5.9	6.0	6.1	6.1
Three-Month Treasury Bill Rate (Percent)	3.0	4.1	5.5	5.1	4.9	4.9	4.9
Ten-Year Treasury Note Rate (Percent)	5.9	6.8	6.8	6.5	6.5	6.5	6.5

SOURCE: Congressional Budget Office.

NOTE: CPI-U is the consumer price index for all urban consumers.

of 1990 (for 1995) and in the Omnibus Budget Rec-
onciliation Act of 1993 (OBRA-93, for 1996, 1997,
and 1998), which allow outlays to increase by less
than $3 billion between 1994 and 1998--a cut of
more than 10 percent in constant dollars. CBO as-
sumes that discretionary spending will grow at the
same pace as inflation after 1998, when the discre-
tionary caps have expired.

CBO projects that the baseline deficit will de-
cline to $202 billion in 1994 and $162 billion in
1995 (see Summary Table 3). The $162 billion
represents the lowest deficit since 1989 and the low-
est deficit as a percentage of GDP (2.3 percent)
since 1979. It also represents a $128 billion reduc-
tion below the record-high deficit of $290 billion
posted in 1992. As recently as March 1993, CBO
projected that the 1995 deficit would be only a few
billion dollars below that record-high level. The
improved outlook for 1994 is the result of policy
changes enacted in OBRA-93, economic perfor-

mance that has been better than anticipated, and
reestimates of spending and revenues for a variety
of technical reasons. The policy changes account
for a little less than half of the improvement in the
1995 deficit.

The same factors that have pushed down the
projected level of the 1995 deficit since March 1993
have also reduced the deficits for other years. The
currently projected deficit for 1998 is more than
$160 billion lower than was anticipated in March
1993. The policy changes enacted in OBRA-93
account for almost 90 percent of the reduction, and
the rest is attributable to a strengthening of pro-
jected economic performance. These factors have
not, however, altered the underlying trend of deficits
that, after falling from the high levels of the early
1990s, rise steadily as the decade draws to a close.
CBO projects that the deficit will grow at an aver-
age rate of more than 9 percent a year between
1995 and 1999, reaching $231 billion in 1999.

Summary Table 3.
CBO Deficit Projections (By fiscal year)

	1993	1994	1995	1996	1997	1998	1999
In Billions of Dollars							
Total Deficit	255	202	162	176	193	197	231
Standardized-Employment Deficit[a]	221	184	183	195	200	196	223
As a Percentage of GDP							
Total Deficit	4.0	3.0	2.3	2.4	2.5	2.4	2.7
Standardized-Employment Deficit[b]	3.4	2.7	2.6	2.6	2.6	2.4	2.6
Memorandum:							
Gross Domestic Product (Billions of dollars)	6,295	6,677	7,070	7,431	7,800	8,179	8,581

SOURCE: Congressional Budget Office.

a.   Excludes the cyclical deficit and deposit insurance spending.

b.   Expressed as a percentage of potential GDP.

Since nominal GDP is expected to grow at an average annual rate of about 5 percent during the same period, the deficit will increase as a percentage of GDP from 2.3 percent in 1995 to 2.7 percent in 1999 (see Summary Figure 1).

Part of the fluctuation in deficits is the result of cyclical changes in the economy. Revenues tend to be lower and outlays higher when the economy is performing below potential. The opposite occurs when actual output exceeds potential. The standardized-employment deficit is a measure of the difference between revenues and outlays that would occur if the economy were operating at potential (it also excludes the net expenditures of deposit insurance agencies and the Desert Storm contributions received in the early 1990s). Taken as a percentage of potential GDP, this measure also declines from high levels in the early 1990s, flattens out, and then begins rising at the end of the decade. Debt held by the public, as a percentage of GDP, follows a similar path.

CBO's abbreviated projections for the 2000-2004 period indicate that under current laws and budgetary policies the growth in deficits experienced at the end of the 1990s will continue, with the deficit equaling 3.6 percent of GDP in 2004.

Summary Figure 1.
The Federal Deficit (By fiscal year)
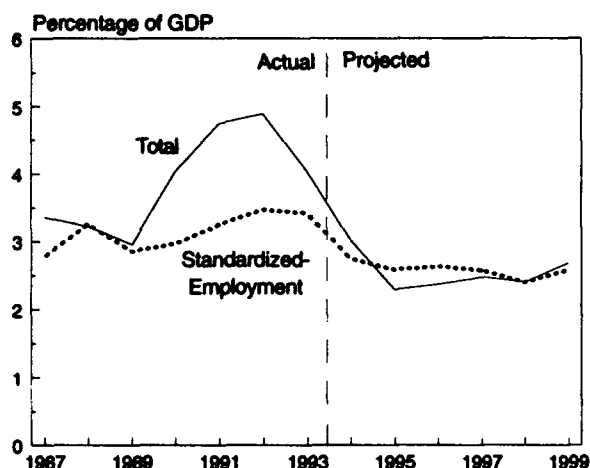
SOURCE: Congressional Budget Office.

There is no reason to assume that the trend will be reversed after 2004 unless policies are changed. In fact, additional pressures on federal spending, when baby boomers start becoming eligible in large numbers for Social Security and Medicare benefits around 2010, are likely to increase the growth of deficits.

The growth in the projected deficit after 1995 will continue to be driven by the increasing costs of the two major federal health care programs: Medicare and Medicaid. These two programs together will grow at an average annual rate of approximately 11 percent from 1995 to 1999, all other outlays will increase at a rate of less than 4 percent, and revenues will increase at almost the same rate as GDP. If increases in spending for Medicare and Medicaid were more in line with the growth of other outlays, the deficit would not grow as a percentage of GDP. Comprehensive reform of the nation's health care system, currently being considered by the Congress, could significantly affect spending for Medicare and Medicaid. Under any of the major proposals considered thus far, however, any savings in these two programs are more than offset by increased spending for other purposes, such as subsidies to allow low-income families to purchase health insurance. Increased revenues may keep health care reform legislation from increasing deficits, but it is unlikely that the adoption of such a plan will significantly reduce them, at least through the next 10 years.

Changes in the Projections

Unlike the report that CBO issued in September 1993, this update does not reflect fundamental shifts in federal spending, revenues, or deficits. Last year's report showed the effects of the enactment of OBRA-93, which reduced deficits by more than $400 billion over five years. Changes from last winter's projections that are reflected in this report amount to a net reduction of just $18 billion over the 1994-1999 period (see Summary Table 4). Legislation enacted since the winter baseline accounts for less than $500 million of that net reduction; changes in CBO's economic forecast and technical estimating assumptions are responsible for the rest.

xv

Changes in the economic forecast reduce projected deficits in the short run (by as much as $8 billion in 1995) and increase them in the long run (by $12 billion in 1999). The combination of higher-than-anticipated economic growth in 1994 and 1995 and increased corporate profits push projected revenues up in all years, but by less in 1998 and 1999 than in the earlier years. The higher interest rates that accompany faster growth drive up net interest expenditures. The increases in projected net interest also decline slightly after 1996, but not as rapidly as the reestimates of revenues decline. By 1998, the increases in net interest costs, together with relatively small increases in other outlays, overwhelm the effect of higher revenues and push deficits up. In any case, compared with some of the large reestimates in previous reports, none of the increases or decreases in any single year represent a major shift.

Changes from the winter projections that cannot be attributed to either legislation or the new economic forecast--so-called technical reestimates--also tend to reduce the deficit in the early years of the projection period (by $18 billion in 1994) and increase it later (by $6 billion in 1999). Technical reestimates increase projected revenues in each year through 1997 but decrease them in 1998 and 1999. Technical reestimates push down outlays projected for 1994 and 1995 but increase them after that. CBO estimates that Medicare and Medicaid expenditures in 1994 will be $4 billion lower than anticipated in the winter baseline. Because it is not clear whether these reductions represent a trend or an aberration in the patterns of Medicare and Medicaid spending, CBO has made no adjustment to the 1995-1999 outlays projected for these two programs. Reestimates of expenditures by deposit insurance agencies are small compared with those in many recent reports but still account for as much as a $5 billion shift in one year. Expenditures for the earned income tax credit (the refundable portion of which is recorded as outlays) are consistently higher through the period than CBO's estimates in the winter baseline. Reestimates in a number of other programs make up the remainder of the revisions in outlays attributable to changes in technical estimating assumptions.

Summary Table 4.
Changes in CBO Deficit Projections (By fiscal year, in billions of dollars)

	1994	1995	1996	1997	1998	1999
Winter Baseline Deficit	228	180	180	192	187	213
Changes						
Legislative changes	a	a	a	a	a	a
Economic assumptions	-8	-8	-5	-2	6	12
Technical reestimates	-18	-10	2	3	4	6
Total	-26	-17	-4	1	10	18
Summer Baseline Deficit	202	162	176	193	197	231

SOURCE: Congressional Budget Office.

NOTE: The projections include Social Security and the Postal Service, which are off-budget.

a. Less than $500 million.

Conclusion

Although a higher rate of economic growth and a lower deficit in 1994 represent good news, the good news is tempered. The recent surge of growth does not herald an improvement in the rate at which potential output will grow. Because the economy is already operating close to potential, an increase in growth above the rate of potential in the short run must be offset by slower growth in the longer run.

Lower deficits in 1994 and 1995 also do not signify any fundamental improvement in the long-term fiscal health of the nation. Under current policies, deficits will begin to rise relentlessly as the decade draws to a close. The current low levels of the deficit should be appreciated as the fruits of the spending reductions and tax increases enacted in OBRA-93. They should not, however, distract policymakers from the need for additional deficit reduction to increase national saving and investment and improve the long-term prospects for the economy.

The Economic Outlook

Since the third quarter of 1993, U.S. economic growth has been robust. Although a substantial gap existed in mid-1993 between the economy's output and what it could potentially produce, the strong growth of the last three quarters has whittled away that gap: by mid-1994, both the capacity utilization rate and the unemployment rate reached levels where inflationary pressures normally begin to be a concern. The Congressional Budget Office (CBO) anticipates that the strong growth of real gross domestic product (GDP) will continue during the second half of 1994 and early 1995.

The strength of the economy during the last three quarters was largely unanticipated. Both the *Blue Chip* consensus forecast and the CBO forecast prepared during the last quarter of 1993 indicated about 3 percent growth for the end of 1993 and the first half of this year.[1] Instead, the economy grew at a vigorous 4.4 percent rate. Growth in employment also accelerated. During the first 10 months of 1993, employment grew by an average of 180,000 jobs a month, but between October 1993 and July 1994, 270,000 jobs have been added monthly. Hours worked increased even more rapidly, and the unemployment rate fell from 6.7 percent in January to 6.1 percent in July. Strong growth in investment and consumption of durable goods spurred the pickup in economic activity. Expenditures by businesses for plant and equipment increased by about 14 percent over the three quarters,

and consumption of durable goods grew by more than 8 percent. Given such a strong performance of the economy over the previous three quarters, the current CBO forecast points toward higher GDP and interest rates, and slightly more inflation, than last winter's forecast.

The Federal Reserve acted early this year at the first signs of the surprising economic strength reported in January. Between February 4 and May 17, it increased the federal funds rate in four steps--from 3 percent to 4.25 percent. These moves signaled a major turning point in monetary policy, which had slowly lowered short-term interest rates over the previous five years (see Figure 1-1). Other

Figure 1-1.
The Federal Funds Rate Signals a Period of Tighter Money
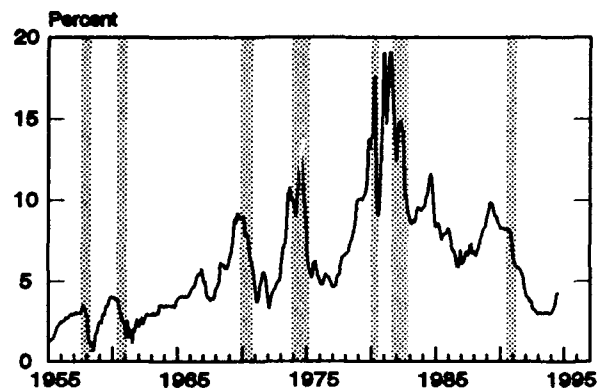
SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: Based on monthly data through July 1994.

---

1. See Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1995-1999* (January 1994); and Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators* (January 10, 1994).

short-term rates closely followed the hike in the federal funds rate, but long-term rates climbed more than short-term rates. Since January, three-month Treasury bill rates have risen by about 135 basis points, while 10-year Treasury rates have risen by about 150 basis points. Policymakers hoped that financial market participants would interpret the Federal Reserve's actions as prudent measures to head off inflation. Instead, the financial community anticipated further adjustments in the federal funds rate and a rise in inflation. As a result, long-term interest rates rose.

CBO's Updated Economic Forecast for 1994 and 1995

CBO expects the economy to continue to expand in 1994 at an annual rate of about 3.6 percent on a fourth-quarter-to-fourth-quarter basis (see Table 1-1 and Figure 1-2). This forecast for growth in 1994 is almost 1 percentage point higher than the rate of 2.8 percent that was forecast last winter. The primary reason for the increase is that business investment in equipment and spending on consumer durables, which accounted for the bulk of the unexpected growth in demand recently, are likely to continue to spur growth through mid-1995. Strong growth in disposable income, together with some pent-up demand for light vehicles (automobiles, small pickup trucks, sport/utility vehicles, and minivans), will stimulate consumption. Moreover, firms now operating at close to full capacity are likely to continue to expand their industrial base to meet the increased demand for goods and services.

If the U.S. economy continues to grow above potential (the level of output consistent with stable inflation) during the last half of 1994 and early 1995, the Federal Reserve is likely to increase short-term interest rates further in order to stem a rise in inflation. Three-month Treasury bill rates are expected to escalate from their average of 4.0 percent in the second quarter to over 5½ percent during 1995, approximately 1.2 percentage points higher than the CBO forecast last winter. The forecast for long-term rates (measured by the rate on 10-year Treasury notes) has also been adjusted upward since the winter by almost a full percentage point to 6.8 percent in 1994 and 1995.

Because the labor force is expected to grow faster in 1995, CBO forecasts the rate of unemployment to fall only gradually, from an average of 6.2 percent in 1994 to 5.8 percent in 1995. The current forecast is about 0.5 percentage points lower than last winter's forecast.

Stimulated by activity in the household and business sectors, the economy is forecast to grow at a 3½ percent rate through the second half of 1994, even though declining federal expenditures and a deterioration of net exports will restrain growth. In 1995, however, GDP growth will slow as investment and consumption subside, though the foreign sector is likely to stimulate growth by increasing the demand for U.S. exports.

Factors Currently Propelling Growth

Investment and consumption are the primary components of demand propelling growth in 1994. The need to meet the increased growth in final demand will drive expenditures by firms on plant and equipment, while growth in disposable income will stimulate expenditures by households.

Business Investment

Capital investment by businesses--particularly investment in equipment--has been the major source of the economy's strength for more than a year, and it should continue to be so for the rest of this year before slowing down in 1995. A combination of factors has spurred spending on equipment since mid-1992--strong growth in final demand, rising profit margins, declining capital costs, and a continued drive by corporations to strengthen their balance sheets. In addition, investment in construction, though not a strong source of growth, is apt to detract less from growth through the end of next year than it did during the last three years. By 1995, with the economy running at capacity, rising interest rates are likely to temper, though not reverse, the growth in business investment.

Table 1-1.
The CBO Forecast for 1994 and 1995

		Forecast	
	1993[a]	1994	1995

Fourth Quarter to Fourth Quarter
(Percentage change)

Nominal GDP			
CBO summer	5.4	6.2	5.3
CBO winter	4.9	5.7	5.4
Real GDP[b]			
CBO summer	3.1	3.6	2.7
CBO winter	2.3	2.8	2.7
Implicit GDP Deflator			
CBO summer	2.2	2.5	2.5
CBO winter	2.5	2.8	2.6
Consumer Price Index[c]			
CBO summer	2.7	2.8	3.2
CBO winter	2.7	2.9	3.0

Calendar Year Averages
(Percent)

Real GDP Growth[b]			
CBO summer	3.0	4.0	3.0
CBO winter	2.8	2.9	2.7
Civilian Unemployment Rate[d]			
CBO summer	*6.8*	6.2	5.8
CBO winter	*6.8*	6.6	6.4
Three-Month Treasury Bill Rate			
CBO summer	3.0	4.1	5.5
CBO winter	3.0	3.5	4.3
Ten-Year Treasury Note Rate			
CBO summer	5.9	6.8	6.8
CBO winter	5.9	5.8	6.0

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor
Statistics; Federal Reserve Board.

a.   The data for 1993 are actual values for the summer forecast but are estimates for the winter forecast.

b.   Based on constant 1987 dollars.

c.   The consumer price index for all urban consumers (CPI-U).

d.   The Bureau of Labor Statistics changed the unemployment survey in January 1994. The CBO summer forecast reported in this table
uses the new survey methodology. The CBO winter forecast has been adjusted upward by about one-quarter of a percentage point to
make the forecast comparable. Data for 1993, shown in italics, use pre-1994 methodology.

Over the last two years, the growth of investment in equipment was spurred primarily by the economic expansion, which raised expectations for both sustained growth in demand and the current and future profitability of corporations. In a continuation of rapid growth that started in early 1992,

business fixed investment grew 13 percent over the past four quarters. All of the growth was in equipment spending, with investment in business structures virtually flat over the past two years. Outpacing the growth in real GDP, total spending on equipment grew by 17 percent over the past year,

Figure 1-2.
The Economic Forecast and Projections

Real GDP Growth

Inflation[a]

Civilian Unemployment Rate[b]

Interest Rates
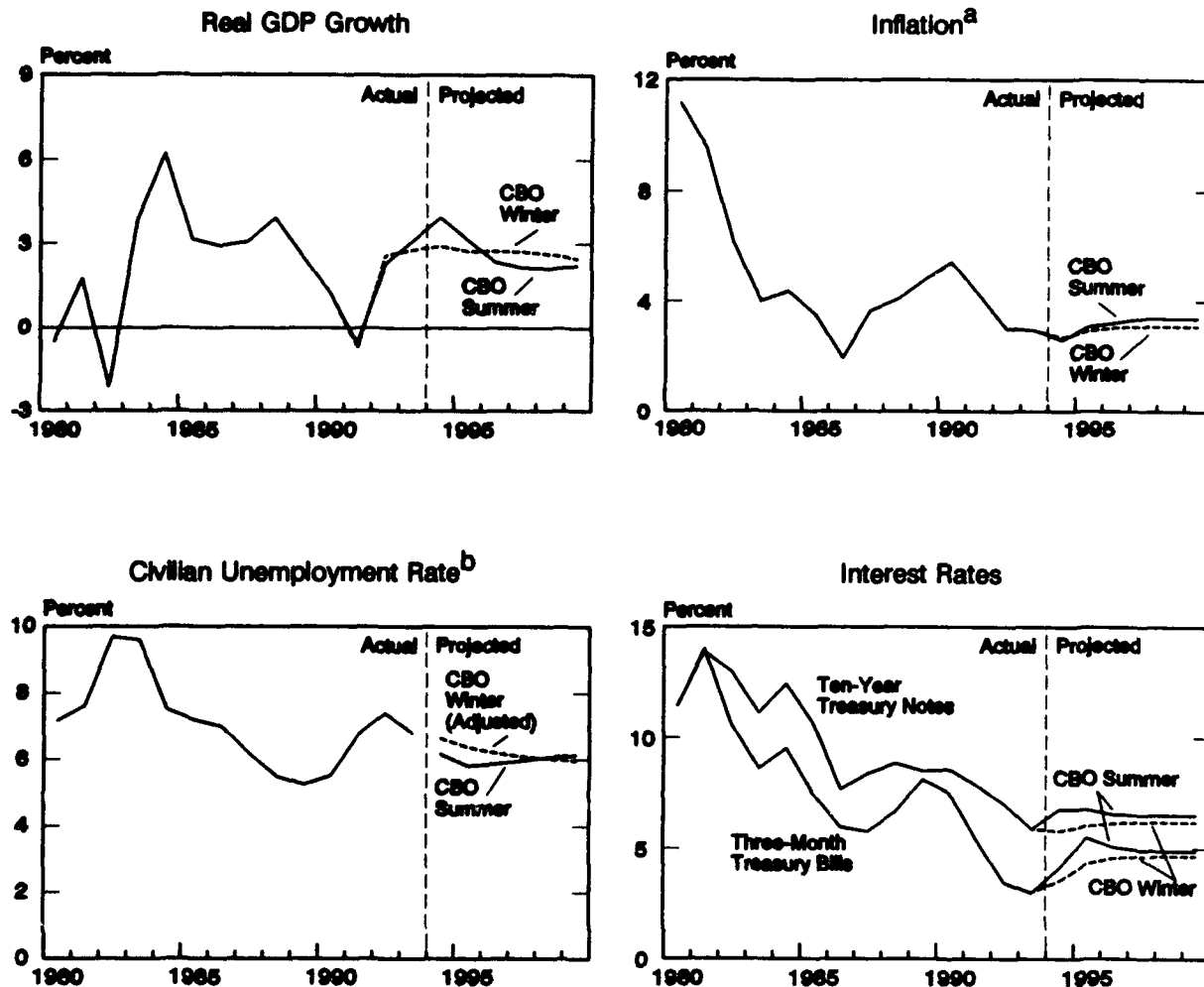
SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics; Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board.

NOTE: All data are presented on an annual basis; growth rates are year-over-year. For 1996 and subsequent years, the projections do not attempt to reflect cyclical patterns.

a. Consumer price index for all urban consumers (CPI-U). The treatment of home ownership in the official CPI-U changed in 1983. The inflation series in the figure uses a consistent definition throughout.

b. From 1994 onward, the unemployment rate reported by the Bureau of Labor Statistics is not comparable with prior data. The discontinuity reflects an extensive revision of survey methods. CBO's summer forecast is made on the basis of the new methods. The winter forecast of the unemployment rate, originally reported on the old basis, has been adjusted upward by one-quarter of a percentage point.

Figure 1-3.
Investment in Equipment is Still Surging
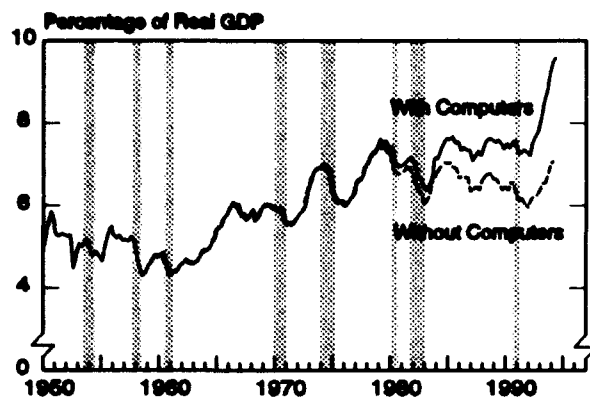
SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

NOTE: The figure shows real investment in producers' durable equipment as a percentage of real GDP.

and spending for equipment other than computers grew by 12 percent (see Figure 1-3).[2]

Will the equipment boom continue? For 1994, the prospects for continued strong growth are good. At midyear, new orders for nondefense capital equipment (excluding aircraft and parts) were up nearly 23 percent over mid-1993 levels, considerably above the pace of shipments. Moreover, factories are operating at historically high rates. Since the end of 1993, the Federal Reserve Board's index of capacity utilization in manufacturing has remained above 82 percent, a sign of capacity constraints. By pressing the capacities of current plant and equipment, growth in final demand should keep the pace of investment spending from dropping much this year. Together with the relatively healthy profit margins that currently prevail, the strength in final demand is likely to overwhelm the adverse effects of rising short-term interest rates on investment plans for the remainder of 1994.

---

2. Computers should be considered separately from other investment in equipment because the rapid growth in real investment in computers stems as much from the decline in the price of computers as it does from increases in nominal spending. Additional investment in computers is probably worth much less to the productive capacity of the economy--and its production requires much less employment and demand for the output of other industries--than its size in the national accounts indicates.

In 1995, however, businesses are likely to purchase capital equipment at a slower rate. By then, the rapid growth of investment in the preceding years will have boosted productive capacity to a level sufficient to meet demand. With the economy growing at its potential rate, the upward climb in interest rates begun in 1994 should temper further growth in spending on equipment by raising the cost of borrowing and pressing profit margins.

Even so, investment in equipment is expected to hold at a fairly high level in 1995. Contributing to this moderate response are the strengthened balance sheets of the nonfinancial corporate sector. Since late 1990, corporations have shifted their liabilities toward equity and long-term debt, which generally imply more predictable financing costs than does short-term debt. Consequently, businesses are now apt to be less vulnerable to short-term increases in interest rates than they were in the 1980s.

Whereas spending on equipment generally follows the business cycle, business expenditures for structures appear to be governed by longer-term cycles. Throughout the boom in equipment investment in 1992 and 1993, spending on construction by businesses was sluggish. Recently, however, some signs of life have appeared. Construction of commercial space such as wholesale and retail outlets has picked up, and industrial building activity grew by more than 10 percent over the past year. Office construction continues to be weak, however. Though much lower than the astronomical peaks in the 1980s, office vacancy rates remain high enough in many areas to continue to cramp the growth of spending on office buildings. Investment in petroleum drilling also continues its secular decline, and both hospital construction and utilities construction have remained flat. Overall, investment in business structures is expected to add little to GDP growth during the forecast period, but at least it will not sap growth, as it did in the 1990-1993 period.

Inventory accumulation since the recession has been lethargic compared with past recoveries and expansions, and, although there was a spurt of inventory investment in the second quarter of this year, CBO does not expect strong inventory accumulation during the forecast. In fact, inventories have slipped relative to sales throughout this business cycle.

Inventories were reported to have jumped in the second quarter, however, prompting some concern that economic activity would slow rapidly in the ꜱnd half of this year. Analysts feared that the ꜱ level of inventories at retail and wholesale ꜱts would result in the cancellation of orders to ꜱfacturers and manufacturing output would uꜱrefore slow. The increase in inventories was indeed large for one quarter, but the ratio of inventory to sales is still quite low. Hence, the increase is probably not a reliable signal of a slowdown in manufacturing, and was largely the result of a temporary weakness in sales of durable goods and apparel. Even a moderate resurgence in sales of these goods will keep inventories in line.

Consumer Spending

The outlook for consumer spending continues to be healthy. Although the growth in consumer spending eased in the second quarter of this year, the slowdown can be tied to special factors that are likely to reverse themselves in the coming months. Continued gains in employment are expected to support growth in disposable personal income and hence consumer spending for the remainder of this year in spite of the recent rise in interest rates and the weakness in the stock market. The pace of consumer spending is likely to slow modestly next year, however, as higher interest rates begin to bite.

The reduction in the growth of consumer spending in the second quarter of this year is not likely to be sustained. The slower growth of spending on consumer services, food, and other nondurable goods came on the heels of strong increases in the first quarter, while the slowdown in spending on apparel may reflect its inherent volatility and problems with the seasonal adjustment of apparel prices. A dip in purchases of motor vehicles stemmed in part from the inability of manufacturers to satisfy the demand for a number of popular light vehicles. However, sales of vehicles are likely to rebound later this year as manufacturers build more vehicles to meet demand.

Indeed, the primary factor determining expenditures on consumption--namely, strong growth in disposable income--is expected to continue over the forecast period. In the first seven months of 1994, about 2 million jobs were created. Moreover, the average hours each employee worked per week increased in the first half of 1994, and now exceed the hours worked at the peak of the previous business cycle in 1990. Given the postwar downtrend in hours worked per week, this development is unusual and suggests that hours worked per week will not expand much more. Firms will probably hire additional workers rather than try to increase hours per worker any further. This escalation in demand for labor will bolster the growth of total compensation and wages. In the CBO forecast, real compensation per hour grows at a slightly brisker pace during 1994 and 1995 than it has in recent years.

Strong household balance sheets will also continue to support spending on consumption. Household net worth may have declined slightly in the first seven months of 1994, mainly as a result of a drop in stock and bond values. The Standard and Poor's 500, for example, dipped 3.9 percent between January and July of 1994. But that drop in stock prices is relatively small, and it is not likely to have that much impact on consumer expenditures.

Developments on the liability side of household balance sheets also support consumer spending. The repayment burden has plunged in recent years (see Figure 1-4). In the first quarter of 1994, it has stabilized, reflecting higher interest rates and strong growth in consumer installment credit. In fact, the increase in installment credit suggests that consumers are comfortable with their financial situation and confident about the growth in their future income.

The growth in consumer spending is likely to ebb next year, however. Spending on consumer durables should slow as more of the pent-up demand for durable goods is met. Moreover, strong growth in income should more than offset the effect of rising interest rates in the latter half of 1994. But higher interest rates will begin to take their toll in 1995 as the growth in disposable income flags somewhat. As a result, the increased cost of borrowing as well as interest payments on existing consumer debt will dampen household expenditures on consumption.

Figure 1-4.
The Burden of Household Debt
Repayment Is Shrinking
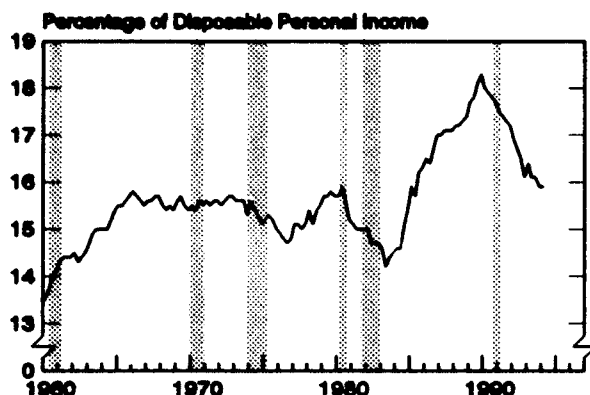
Percentage of Disposable Personal Income

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board.

NOTE: Debt repayments are shown as a percentage of disposable personal income. The latest data are for the first quarter of 1994.

Factors Currently Restraining Growth

Further fiscal tightening and net exports are expected to restrain growth in 1994. However, in 1995, the government sector should have a neutral impact on growth, while recovering economies in the rest of the world are likely to stimulate growth through an increase in the demand for U.S. exports.

Fiscal Policy

Because of the underlying near-term strength in consumption and investment, the fiscal restraint this year from the Omnibus Budget and Reconciliation Act of 1993 (OBRA-93) has not brought about much loss of output and employment. As it now appears, that restraint has instead helped to check inflationary pressures. Despite continued reductions in real federal purchases, however, fiscal policy will assume a neutral stance in 1995, which will continue throughout the projection period.

CBO estimates that under current tax and spending policies the total budget deficit will decline from $255 billion in fiscal year 1993 to $202 billion in 1994 and to $162 billion by 1995 (see Table 1-2). Thereafter, it escalates throughout the projection period, reaching $231 billion by 1999. Moreover, under current law, much heftier deficits are likely in the next century, despite all of the deficit reduction undertaken in OBRA-93.

To measure the impact of fiscal policy on short-term growth, the total deficit is usually adjusted by removing cyclical fluctuations in receipts and outlays as well as outlays for deposit insurance. A commonly used measure of fiscal policy that incorporates these adjustments is the standardized-employment deficit. It calculates what the budget deficit would be without deposit insurance if the economy were operating at potential GDP. Changes in the standardized-employment deficit from one year to the next indicate the degree of fiscal stimulus or restraint. When this deficit rises, fiscal policy is considered stimulative; when it falls, fiscal policy is restrictive.

Based on the new economic and budget estimates in this report, the standardized-employment deficit will come down from 3.4 percent of potential GDP in fiscal year 1993 to 2.7 percent in 1994 and 2.6 percent in 1995. Thus, moderate restraint in 1994 gives way to an essentially neutral policy stance in 1995. In part, this movement reflects the recent rise in interest rates, which has resulted in higher interest payments on new and refinanced federal debt. But these additional interest payments may have little impact on short-term growth. Instead of spending this additional interest, debt-holders may choose to save most of it, especially if the higher interest earnings simply compensate them for expected losses in their wealth as a result of higher inflation. Excluding interest payments, the standardized-employment deficit shows about the same amount of restraint in 1994 but somewhat more in 1995--the first full year of higher interest rates in the CBO forecast.

With very little change after 1995 in the standardized-employment deficit relative to potential GDP, fiscal policy would no longer help to raise future living standards by stemming the federal

Table 1-2.
The Fiscal Policy Outlook (By fiscal year on a budget basis)

	1993	1994	1995	1996	1997	1998	1999
In Billions of Dollars							
Total Budget Deficit	255	202	162	176	193	197	231
Standardized-employment deficit[a]	221	184	183	195	200	196	223
Cyclical deficit[b]	61	22	-3	-7	-2	6	12
Memorandum:							
Deposit Insurance	-28	-5	-17	-12	-5	-5	-4
Net Interest	199	202	226	245	253	264	277
As a Percentage of Potential GDP							
Total Budget Deficit	3.9	3.0	2.3	2.4	2.5	2.4	2.7
Standardized-employment deficit[a]	3.4	2.7	2.6	2.6	2.6	2.4	2.6
Cyclical deficit[b]	1.0	0.3	0	-0.1	0	0.1	0.1

SOURCE: Congressional Budget Office.

a. Excludes cyclical fluctuations and outlays for deposit insurance.

b. A negative value in this line indicates a surplus.

drain on national saving. Although making further deficit reductions would change this pattern in future years, the longer such decisions are postponed, the more difficult they will be to make. CBO's projection does not explicitly include another recession, but the chance that one will occur before the end of the decade is significant. When it does hit, many policymakers will want to avoid exacerbating an economic downturn, thereby thwarting any attempts to reduce the federal deficit. If only for this reason, it would be much easier to reduce deficits now rather than later.

Pending legislation to reform the health care system will probably have little effect on the size of the federal deficit, although it could significantly alter the composition of receipts and outlays. It is also unlikely to change private saving very much. Most proposals, however, would involve a redistribution of health care costs among different groups of employers and employees, and thus could alter their hiring practices and employment decisions.[3] The extent of these distortions will depend on what specific provisions are ultimately enacted, but uncer-

tainty about this outcome could be affecting employment decisions now.

State and Local Budgets

Although state and local governments are not expected to add much to the overall economy in the next two years, neither are they expected to restrain it, as they have in recent years. Actually, state and local governments are in their best fiscal position since the start of the recession in 1990.

Over the past few years, states have been more conservative in their revenue estimates and have restructured many of their programs to promote efficiency. As a result, 1994 revenue collections matched or exceeded projections in almost all of the states, and fewer states are having to make midyear

3. See Congressional Budget Office, *An Analysis of the Administration's Health Proposal* (February 1994), and *An Analysis of the Managed Competition Act* (April 1994).

budget adjustments. Many states are actually considering reducing taxes, especially for lower-income families. Taxes targeted for reduction include the sales tax, personal income tax, and corporate income tax in an effort to attract businesses. However, taxes on cigarettes, motor fuels, and alcohol are still climbing.

Although that picture offers a rosier outlook than states have had for the past several years, it is not without potential pitfalls. Increasing costs of grants-in-aid programs such as Medicaid, federal mandates such as the Safe Drinking Water Act, and the uncertain future of health care reform have the potential to darken this outlook. In addition, the modest overall growth in state expenditures masks the shifts that are occurring within state budgets. All major state functions except Medicaid and criminal justice declined as a percentage of state budgets from 1987 to 1993. Although the rate of growth of Medicaid spending slowed recently, the growth in Medicaid costs is still exceeding the rate of inflation. Spending on corrections is also growing, in part because many states are under court orders to relieve overcrowding and improve prison conditions.

Net Exports

The U.S. trade deficit is expected to widen through 1994, but then begin to improve in early 1995. That change in trade performance reflects the different patterns of economic recovery in the major industrial countries. The U.S. economy, which was one of the first to experience recession, recovered earlier and is now growing more quickly than most of its major trading partners. This faster growth in the United States has produced correspondingly strong growth in spending on imports by U.S. businesses and consumers. Consequently, the growth in imports has exceeded that of exports, so it is not surprising that the trade balance has deteriorated since the U.S. recovery began (see Figure 1-5).

As the recoveries in the major trading partners of the United States take hold in 1995 and the developing countries continue to expand, the growth in U.S. exports is expected to outpace that of imports. In the CBO forecast, the world GDP index

Figure 1-5.
Net Exports Move According
to World and U.S. Output
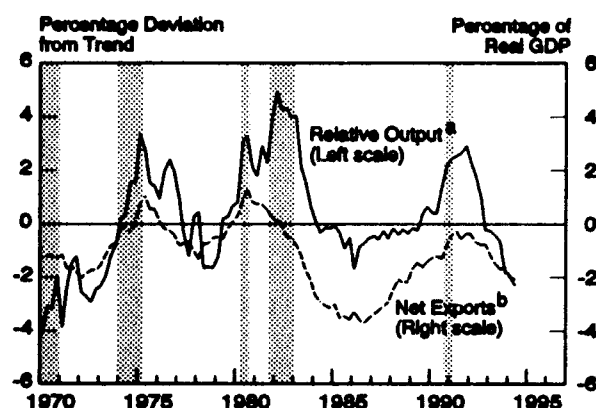
SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board.

NOTE: U.S. real net exports rise when the rest of the world's real GDP rises relative to U.S. real GDP.

a. Relative output is the ratio of the rest of the world's real GDP, measured by a 28-country trade-weighted index, to real U.S. GDP. Data are shown with a nonlinear trend removed.

b. Real net exports as a percentage of real GDP.

of 28 countries, in which the GDPs are weighted by each country's share of U.S. nonagricultural exports, is expected to grow more slowly than GDP in the United States in 1994, but to overtake it in 1995.

Two of the United States' major trading partners, Germany and Japan, have endured painfully slow recoveries but are now showing signs of improvement. In Germany, the first major drop in unemployment since late 1991 was posted in June of this year. Although the recent rise in long-term interest rates, slow wage growth, and a restrictive fiscal policy are expected to weaken domestic demand in 1994, personal spending on consumption is likely to revive as the labor market stabilizes. As a result, the saving rate could fall. According to a survey of private forecasters, growth in output is expected to register about 1.8 percent in 1994 (compared with a decline of 1.2 percent in 1993) and 2.6 percent in 1995.[4]

---

4. See Consensus Economics, Inc., *Consensus Forecasts* (July 11, 1994).

Although the Japanese economy remains weak, signs of recovery were evident in the first half of 1994. In Japan's private sector, consumer spending has recently revived, and some gains in industrial production were reported in the first half of 1994. Excess capacity and failing prices, however, still plague the Japanese economy. Consequently, according to the survey of forecasters, growth in output will slightly improve from 0.1 percent in 1993 to 0.7 percent in 1994. In 1995, spending on consumption and an upturn in corporate investment are expected to increase GDP growth to 1.9 percent.

Canada, Latin America, and the newly industrialized countries of Asia, which together accounted for approximately 50 percent of U.S. export demand last year, should enjoy slightly faster growth in 1994 and 1995, and strengthen export growth in the United States. According to the survey of forecasters, the Latin American countries are expected to grow at an average of 3.2 percent over the forecast period, while the newly industrialized countries of Hong Kong, South Korea, Singapore, and Taiwan will continue to expand rapidly at nearly 7 percent over 1994 and 1995. At the same time Canada, the United States' major trading partner, is expected to grow at an average of 3.6 percent in 1994 and 1995.

A Neutral Factor: Residential Construction

Residential construction bolstered growth in demand over the last four quarters, but it is likely to wane during the second half of this year and remain pallid during 1995. The weak underlying demographics of housing demand during the 1990s, which tend to put a ceiling on housing starts, and the rise in mortgage rates are the main reasons to expect slower growth. The CBO forecast assumes that housing starts will be about the same on average over the next year and a half as last quarter's rate of 1.44 million units.

Although many analysts believe that the growth of residential construction will ebb, some forecasters have argued that residential investment will continue to contribute to GDP growth. These analysts argue that demographic projections are highly uncertain

and may not form a good basis for forecasts of housing. They also note that the decline in home ownership rates over the 1980s for many groups may imply a pent-up demand for nonrental units.

Interest Rates and Affordability

The rise in interest rates during the first half of this year will dampen residential investment, but the higher rates are unlikely to reduce activity severely. Conventional mortgage interest rates have climbed from 7.1 percent in January to 8.6 percent for July, bringing rates back to mid-1992 levels. They are still, however, below those of the 1980s, and about equal to the average for the mid-1970s (see Figure 1-6). In addition, the availability of adjustable-rate mortgages provides home buyers with an opportunity to soften the effects of the increase in fixed-rate mortgages. The wide disparity between short-term adjustable-rate mortgages and long-term mortgages has recently encouraged a resurgence of adjustable-rate financing.

Housing affordability declined recently, reflecting the increase in interest rates, but it still remains high (see Figure 1-7). The affordability index compares median family income with the income re-

Figure 1-6.
Mortgage Rates Have Turned Up
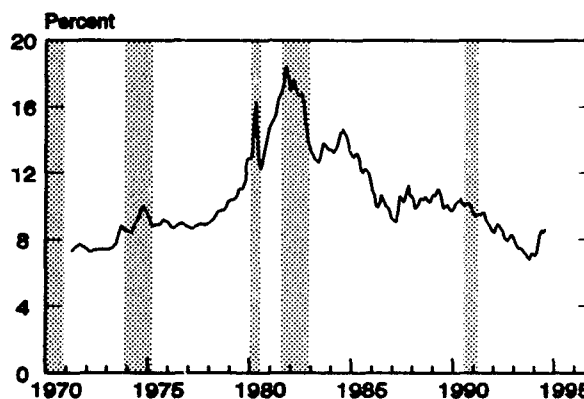
SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: Contract interest rates on commitments for fixed-rate mortgages. Based on monthly data through July 1994.

Figure 1-7.
Housing Is Still Affordable
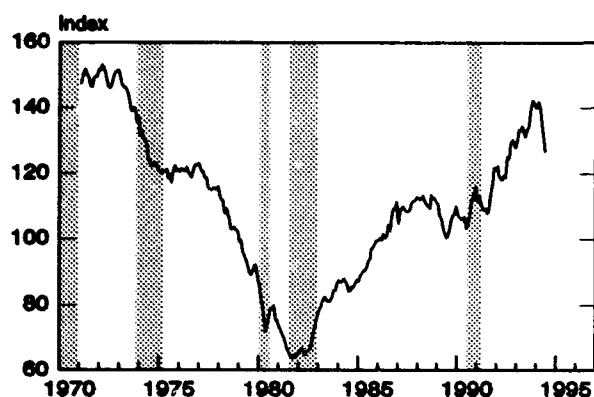
SOURCES: Congressional Budget Office; National Association
           of Realtors.

NOTE: Monthly data are shown through June 1994. The index
        equals 100 when median family income is just sufficient
        to qualify a family to purchase a median-priced home.

quired to purchase a home of median price. Affordability jumped sharply in the years since the 1990 recession, and, although the recent drop is significant, affordability is still at high levels relative to the last 15 years. Currently, according to the index, the median family income is about 30 percent higher than necessary to qualify for the purchase of a typical home.

Expectations of future changes in housing prices, one of the important factors influencing the decision to buy a home, are not reflected in the affordability index. If potential buyers anticipate rapid appreciation in home values, they are more willing to buy, even when mortgage rates are high. This inclination was an important stimulant to demand in the late 1970s when housing prices were appreciating rapidly. Since inflation in housing prices has been much more moderate recently, buyers are currently unlikely to see generous increases in housing values. Therefore, even though affordability is better now than in the late 1970s, the financial incentives to buy a house may not be as positive as the affordability index indicates.

Demographics

The underlying demographics imply general weakness in housing throughout the 1990s. Generally slower growth in household formation and the changes in the age distribution of the population indicate that the demographic impetus to housing construction that was so strong in the 1970s and 1980s will progressively weaken through this decade. The number of households, rather than population, is the main factor determining the need for housing units. The Census Bureau reports that population growth for the 1990s is likely to be about the same as it was between 1965 and 1985, but net household formation will probably be much slower.

The changing age distribution of households implies that the recent weakness in rental markets and first-time home buying will continue. The number of households headed by a person age 25 to 34 is declining, and this group constitutes the rental and "starter" home market. Some of the weakness in rental markets may be offset by the rapid growth in households headed by a person over 45 years old, but the net effect of these demographic shifts on rental markets is likely to be negative.

These demographic trends may, however, understate future demand for housing. Unpredictable changes in household formation, changes in employment and income growth that affect the decision to rent or buy, and a possible pent-up demand for owner-occupied housing may offset the general demographic pressures. The dip in home ownership rates between 1980 and 1992 raises the possibility of pent-up demand for owner-occupied housing. Although the decline in the overall home ownership rate was not large--it fell from 65.6 percent in 1980 to 64.1 percent in 1992--households in which the head of household was 44 years old or younger (particularly those that have children) experienced much sharper declines in home ownership rates, about 8 percentage points. The current relatively high level of affordability of single-family housing may permit home ownership rates for these groups to increase.

The Risk of Inflation

Concerned about the unexpected pickup in growth in the U.S. economy and the low level of real short-term interest rates, the Federal Reserve increased the federal funds rate by 1¼ percentage points in the first half of 1994. Policymakers at the Federal Reserve noted that the rapid growth of late 1993 and early 1994 and the speed at which excess capacity in the economy was being eliminated increased the probability of higher inflation over the next two years. Short-term interest rates needed to rise, they argued, in order to curb future inflationary pressures.

Is the inflationary threat real? Although estimates of the highest level of output that can be sustained without inducing higher inflation are uncertain, continued growth in excess of 2½ percent is indeed likely to exacerbate inflation eventually. The pressures are not yet great, however, and inflation should not pick up for a year or so, even if the pressures do become more intense.

The Economy Has Little Excess Capacity

The major indicator of the economy's ability to expand production rapidly without risking higher inflation is the unemployment rate. Right now, it indicates that the economy is at a high level of resource use (see Box 1-1). Therefore, in contrast to the three years since the recession ended in early 1991, any further expansions of output cannot now rely on underused resources. Instead, the rate of growth the economy can maintain at steady inflation rates is limited by the trends in the labor supply, capital stock, and productivity.

The unemployment rate has dipped into a range that indicates a mildly inflationary situation. One measure of labor market capacity--the nonaccelerating inflation rate of unemployment (NAIRU)--is based on the historical relationship between inflation and the unemployment rate (see Appendix B). If the historical relationship continues to hold and the unemployment rate falls below the NAIRU, infla-

tionary pressures will slowly build; if unemployment rises above the NAIRU, disinflationary forces will prevail. How much the inflation rate changes depends on the size and the duration of the difference between actual unemployment and the NAIRU. Currently, the NAIRU is estimated to be about 6 percent.

With the unemployment rate at 6.1 percent in July and the near-term outlook indicating (aside from the statistical uncertainties caused by the new employment survey) that it will slip further, pressures on inflation are likely to increase. Economic expansion along the lines of the CBO forecast would presumably bring down the unemployment rate to about 5¾ percent by the last half of 1995. The resulting increase in the underlying rate of inflation is apt to be small--on the order of about one-quarter of a percentage point by the end of next year. CBO estimates that the current underlying rate of inflation is between 2¾ percent and 3 percent, so given the forecast for unemployment, inflation would increase to a little over 3 percent by late 1995.

The concept of the NAIRU has been useful for explaining short-term movements in inflation in the past, but it helps to clarify only the effects of excess demand (see Box 1-2). Numerous events can have short-term effects on inflation, such as droughts, oil supply shocks, changes in excise taxes, and import prices. These events could have a much larger effect on inflation during the forecast period than changes in excess demand. CBO has not, however, built any major supply shocks into its forecast for inflation through 1995.

The growth of wage rates and unit labor costs has not yet increased. Usually, however, increases in wage rates and unit labor costs lag the tightening of labor markets, so one should not be sanguine about the lack of any acceleration to date. Gains in hourly labor compensation over the past four quarters have remained at 3 percent, and productivity, though slipping recently, grew 2.6 percent over the past year. This combination of growth in wages and productivity has kept the growth of unit labor costs at 0.4 percent over this period. Inflationary pressures from labor costs, therefore, have not yet started to build.

The drop in the unemployment rate below the NAIRU suggests, however, that inflation in labor costs will accelerate slightly during 1995. Wage gains are likely to pick up as labor markets tighten, and productivity growth is expected to fall off as it usually does in a late expansion. Thus, growth in unit labor costs will be higher than during the past year, though not so large as to cause a sharp increase in inflation.

Some analysts suggest that the standard NAIRU analysis overstates the tightness of the labor market. Various other indicators of the degree of labor market tightness, such as the volume of help-wanted advertising and the percentage of unemployed people who are not just on a temporary layoff, imply more slack than does the NAIRU analysis. The help-wanted index has risen much less during this expansion than it did in previous expansions, and,

when adjusted for biases in the way the data are collected, the help-wanted index appears quite low.

Although these conflicting signals about the labor market introduce some uncertainty into the forecast, the relationship between inflation and unemployment has been closer in the recent past than between inflation and other measures of slack in the labor market. Thus, the CBO forecast anticipates slightly higher inflation stemming from labor market pressures.

Other Considerations Signal Inflation

Other indicators of future inflation also imply that inflationary pressures are building somewhat. Capacity utilization and recent movements in some

---

Box 1-1.
A New Measure of the Unemployment Rate

The Bureau of Labor Statistics (BLS) introduced new survey methods for the unemployment rate in January 1994. These changes make it difficult to compare the earlier data with that currently reported. Moreover, the change in the survey might have distorted the picture of improvements in the labor market over the first half of this year.

The unemployment rate is derived from the Current Population Survey (CPS). The Bureau of Labor Statistics undertook a major redesign of the CPS in January 1994 to improve the accuracy and quality of the labor statistics drawn from this survey of households. The redesigned survey obtains more accurate information about participation in the labor force, most notably for women. The BLS also computerized the survey process, data collection, and transmission to reduce errors.

Various background studies led the BLS to anticipate that the unemployment rate reported after the redesign would be higher than under the old procedures. The new survey was expected to result in higher measured unemployment because it reduced the likelihood that women who were looking for work would be misclassified as "keeping house."

Although most analysts thought that the unemployment rate would rise by between 0.4 and 0.6 percentage points with the shift to the new measure, many are less certain now that six months of data are available. The new measure may be closer to the old one than previously thought--only about one-quarter of a percentage point higher.

The new series may also not reflect recent trends accurately. The unemployment rate during the period of the new survey has fallen rapidly, from 6.7 percent in January 1994 to 6.1 percent in July. But the measure reflects seasonal adjustments that try to purge typical seasonal changes in the unemployment rate (such as a surge in hiring during Christmas) in order to represent underlying trends better, and these seasonal adjustments are based on the patterns of past years. The new survey has no history of seasonal patterns, however, so the seasonal adjustments of the old survey have been used to adjust the new data. This new method may be causing an over- or understatement of the decline in the unemployment rate since January. Therefore, the rapid drop in the unemployment rate this year may not be an accurate reflection of recent trends in the labor market.

producer prices are causes for concern, but fears of rapid inflation stemming from the drop in the dollar or commodity price hikes appear to be overblown.

The reduction in excess capacity in manufacturing suggest. that concerns about inflation are warranted, though inflation is unlikely to increase rapidly. The capacity utilization rate for manufacturing

shows a high level of resource use, and some industrial prices have increased. The utilization rate is currently above 82 percent, a level that has been associated with an increase in goods inflation during the past 20 years. However, few industries have significantly raised prices to date. The overall producer price index for finished goods has risen only slightly over the last year, with only scattered in-

---

Box 1-2.
Using the NAIRU to Forecast Inflation

The historical experience from 1987 to 1990 illustrates the usefulness of the concept of the nonaccelerating inflation rate of unemployment (NAIRU) in forecasting inflation. During that period, the NAIRU signaled inflation, and inflation developed on cue. Even the magnitude of the increase in inflation was close to the expected amount.

By CBO's estimate, excess demand developed near the end of 1987--that is, the actual unemployment rate fell below the estimated NAIRU level (6 percent for that year, based on the old employ-

Higher Inflation Follows
Labor Market Tightening

SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: Shading indicates the period when labor market conditions are inflationary.

a. Consumer price index for all urban consumers (CPI-U), excluding food, energy, and used cars.

b. Labor market tightness is measured as the difference between CBO's estimate of the NAIRU and the actual unemployment rate.

ment survey). Aggregate demand continued to grow faster than the 2½ percent potential growth rate of the economy during 1988 and 1989. The unemployment rate fell farther as a result, and ultimately wage and price inflation increased.

Yet inflation did not increase right away. The underlying rate of inflation (as measured by the consumer price index excluding food and energy) remained virtually unchanged throughout the 1987-1989 period, even though the unemployment rate averaged 5.3 percent from mid-1988 to the end of 1989. It was not until late 1989, two years after the unemployment rate fell below the NAIRU, that inflation picked up. Eventually, the underlying rate climbed from 4.2 percent in 1987 to 5.4 percent in the last half of 1990 (see Figure).

The increase in the underlying rate of inflation was consistent with a commonly used rule of thumb for forecasting the inflationary effect of maintaining an unemployment rate below the NAIRU. The rule of thumb states that whenever the actual rate of unemployment is 1 percentage point below the NAIRU for a year, the underlying rate of inflation will increase by about one-half of a percentage point. That is, if the NAIRU is 6 percent and the actual unemployment rate remains at 5 percent for a year, there will be one point-year of "excessive" employment for that year, and the underlying rate of inflation would be about one-half of a percentage point higher than it would have been if the unemployment rate had been 6 percent.

According to the point-year rule, the underlying rate of inflation should have increased about 1 percentage point between late 1987 and the onset of the recession in mid-1990. The underlying inflation rate rose by 1.2 percentage points, a close match.
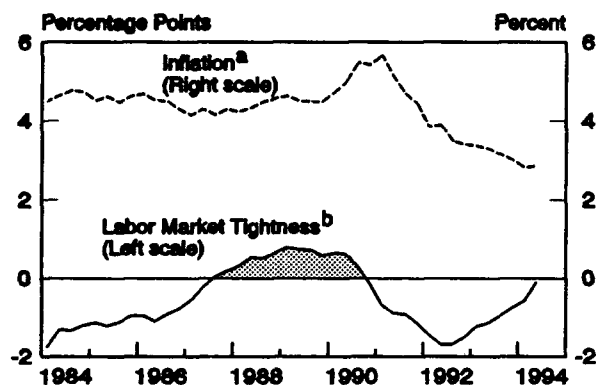
creases in construction materials, motor vehicles, and some chemicals and metal products.

The recent increase in capacity constraints in manufacturing may not have much effect on the consumer price index (CPI), even if changes in the prices of goods did pick up. Changes in the CPI are not closely related to changes in the overall prices of goods, since the overlap between the goods sector and the set of prices included in the CPI is relatively small. The price of goods accounts for less than 44 percent of the items in the CPI, and, if food and energy--goods whose prices are not closely related to capacity utilization--are excluded, goods account for only about 21 percent of the CPI. The prices of services in the CPI will ultimately accelerate as excess resources are reduced, but prices for services will not increase rapidly. Inflation in services has fallen to about 3½ percent, and it will probably increase slowly, as it did in 1988 and 1989 (see Figure 1-8).

Two indicators of potential inflation have been widely cited--the decline in the dollar and the increase in commodity prices. But both are unlikely to be significant. Some analysts believe the drop in the dollar against the German mark and the Japa-

Figure 1-9.
Putting Recent Dollar Weakness in Perspective

SOURCES: Congressional Budget Office; Federal Reserve Board.
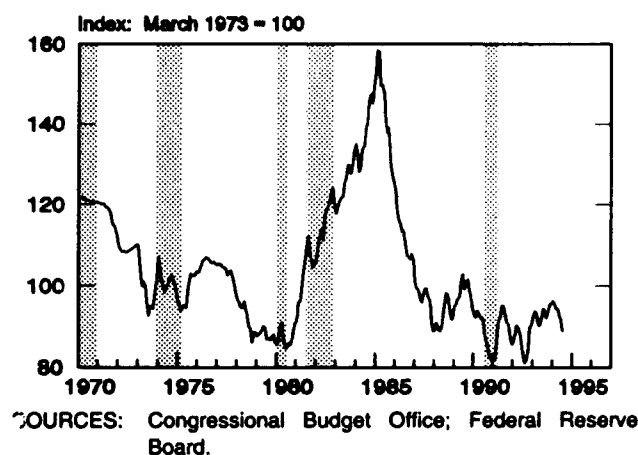
NOTE: Trade-weighted index relative to the currencies of 10 countries: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom. Based on monthly data through July 1994.

nese yen in the first half of this year will cause import prices and the prices of U.S.-produced goods that compete with imports to increase. Even though the value of the dollar fell 7.8 percent between January and July relative to the 10 major industrial countries, the drop is unlikely to cause a significant increase in the prices of imported goods. The recent weakness of the dollar is relatively small and, to date, only reverses an increase in the dollar that occurred during late 1992 and 1993 (see Figure 1-9).

The increase in commodity prices during the first half of this year has also been mentioned as a possible indicator of an increase in inflation. Commodity prices are not, however, a reliable signal of higher inflation. Commodity price indexes have risen numerous times in the past for six-month periods without any accompanying increase in CPI inflation. In addition, commodity price indexes have eased recently.

Prices of petroleum--one of the most important commodities--jumped between February and June, and they have increased only slightly since then; CBO does not anticipate that oil prices will experience any further sharp increases. Although the rise

Figure 1-8.
The Prices of Services Are Slow to Accelerate

SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: Growth year-over-year in the consumer price index for services less energy services. Based on monthly data through July 1994.

in petroleum prices will probably lead to a one-time increase in gasoline and fuel oil prices in late summer, energy costs are unlikely to exacerbate inflation after that time.

Short-Term Interest Rates Will Increase Again

Early this year, signs of strong economic growth and the tightness of labor markets prompted the Federal Reserve to raise the interest rate on federal funds. Its goal was to ease the nascent inflationary pressures and thereby increase the likelihood of a prolonged expansion. Although it became clear as the year progressed that interest rates should rise--in fact, they would have probably risen somewhat without Federal Reserve actions--how much higher short-term rates have to go to limit growth to a sustainable pace remains uncertain. The three-month Treasury bill rate increased about 1.35 percentage points between January and July, and long-term rates jumped even more. Moreover, 10-year Treasury notes climbed from 5.8 percent to 7.3 percent during the same period.

CBO anticipates that short-term rates will have to increase further, by perhaps 1½ to 2 percentage points before mid-1995, in order to slow economic growth to a sustainable pace (that is, GDP growth of less than 3 percent). Although real short-term interest rates rose during the first half of this year, they are still quite low compared with similar periods of late expansion. Moreover, real short-term rates are currently well below long-term rates, and are expected to rise given general pressures for higher real rates in the mid-1990s.

Real Short-Term Interest Rates. Real short-term interest rates were inordinately low during 1993, averaging 0.5 percent (see Figure 1-10).[5] Such low real interest rates could not persist for extended periods without ultimately overstimulating the economy and risking higher inflation. By early August

---

5. Real interest rates cannot be measured directly, since they depend on expectations of inflation that are unknown. A commonly used proxy, the nominal interest rate less actual (as opposed to expected) inflation, is used here.

of this year, the real short-term rate had sprung up sharply, but will probably climb further given historical experience. The nominal three-month Treasury bill rate was 4.3 percent, and the real rate was about 1.2 percent in early August.

When the economy is in, or close to, a late expansion phase (that is, at or nearing full employment), real short-term interest rates usually climb above 2.5 percent. In two periods, 1973 to 1974 and 1979 to 1980, the commonly used proxy for real rates implies low real rates (see Figure 1-10). However, those periods were affected by major supply shocks (primarily, sharp increases in oil prices), so that the increase in inflation was unexpected and therefore the proxy for real rates was less useful. Although the behavior of real rates during those periods is not clear, without a major inflationary supply shock, real short-term rates on the order of 2.5 percent are the historical norm.

Another pattern in previous expansions is the narrowing of the difference between short- and long-term interest rates late in the expansion, as the

Figure 1-10.
Real Short-Term Interest Rates Are Still Low
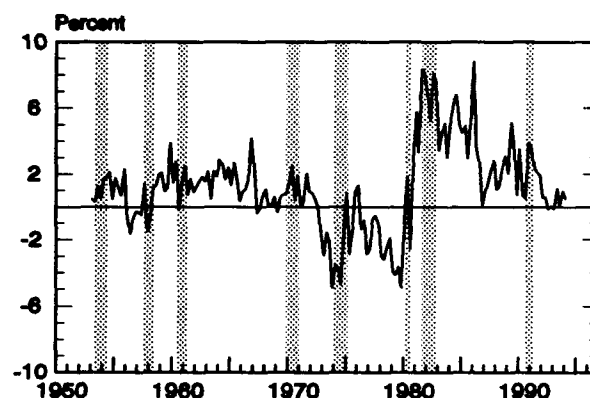
NOTE: The real short-term interest rate is calculated by subtracting the growth of the consumer price index at an annual rate for all urban consumers over the subsequent three-month period from the three-month Treasury bill rate. Quarterly averages are shown.

Federal Reserve slows the growth of the money supply (see Figure 1-11). If this pattern holds up through this expansion, short-term rates will probably have to rise further. The current spread between short- and long-term rates is extremely large, particularly given the stage of the business cycle. Normally, short-term rates increase faster than long-term rates, and the difference between the two narrows as the expansion progresses.

The spread, however, has not narrowed this year. Long-term rates jumped by a surprisingly large amount early this year when short-term rates started to increase, a response that appears to have stemmed from a reassessment of the risk of short-term rates increasing much more rapidly in the future than was previously thought. The perception of an increased risk of higher short-term rates, in turn, could have been affected by a reassessment of the risk of future inflation, particularly given the news that the economy was much stronger than forecast. CBO anticipates that long-term interest rates will ease over the next year and a half, as inflation remains relatively mild and growth is tempered during 1995, but the easing will be slow. Therefore, the narrowing of the spread is likely to occur primarily as short-term rates rise.

Figure 1-11.
The Interest Rate Spread Usually
Narrows Late in Expansions
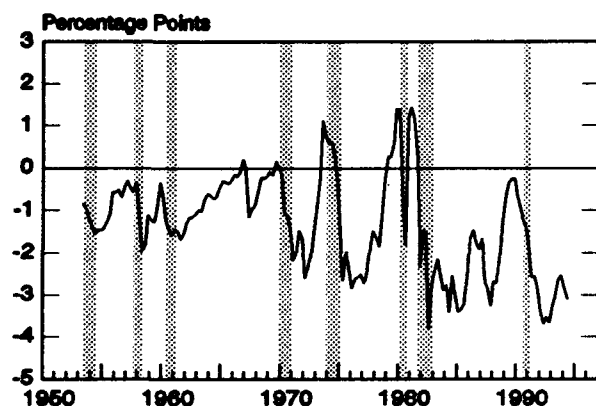
SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: The interest rate spread is the three-month Treasury bill rate minus the yield on a 10-year Treasury note.

General Pressures for Higher Interest Rates. A number of trends indicate that real short-term interest rates will be greater than the current 1.2 percent--trends in the saving behavior of the government and private sector in the United States, the recovery of the industrialized countries of Europe and Japan, and the increasing capital demands of newly industrialized countries.

Real interest rates have varied widely over the postwar period. The current real short-term interest rate is about the same as the rate that prevailed during the historical period from 1953 to 1967. Over that period, large supply shocks were absent and inflation was quite low--averaging 1.5 percent. Consequently, this time frame can be used, tentatively, as a standard of comparison for the mid-1990s.

By that standard, real interest rates are likely to rise from current levels. One factor pushing up real rates in the 1990s is the relatively low national saving rate. Despite the progress in deficit reduction over the past four years, the projected federal budget deficit is a much larger share of GDP--2.5 percent--for the remainder of the 1990s than it was in the 1953-1967 period, when the federal deficit averaged 1.1 percent of GDP. In addition, private saving is much lower. Gross saving by businesses and households averaged 16.3 percent of GDP from 1953 through 1967, but has recently averaged about 12.6 percent of GDP. The continued high level of government borrowing, combined with low private saving, will put pressure on capital markets and on real interest rates.

The growth of foreign economies is another reason to expect higher real interest rates. In the mid-1990s, the European countries and Japan will have recovered from their current economic difficulties. And CBO has long anticipated that world capital demands, driven by development needs in Eastern Europe, the former Soviet Union, Latin America, and the newly industrialized countries of Asia, are likely to increase. The North American Free Trade Agreement is also likely to encourage capital investment in Mexico, although this demand will be small in relation to the size of the world capital market.

Projections for the Years Beyond 1995

CBO projects that real GDP will grow at an average annual rate of 2.2 percent over the medium term-- that is, between 1996 and 1999 (see Tables 1-3 and 1-4). The projection for real growth assumes that the unemployment rate will average 6 percent dur-

ing that period (under the new definition of the unemployment rate). Inflation, measured by the annual rate of change in the CPI-U, is assumed to average 3.4 percent during that period. The three-month Treasury bill rate, which is forecast to increase between now and mid-1995, is expected to decline gradually thereafter. The 10-year Treasury note rate averages 6.5 percent between 1996 and 1999.

Table 1-3.
Medium-Term Economic Projections for Calendar Years 1994 Through 1999

| | 1993 | Forecast | | Projected | | | |
		1994	1995	1996	1997	1998	1999
Nominal GDP (Billions of Dollars)	6,378	6,777	7,161	7,523	7,893	8,277	8,687
Nominal GDP (Percentage change)	5.6	6.3	5.7	5.1	4.9	4.9	5.0
Real GDP (Percentage change)	3.0	4.0	3.0	2.4	2.1	2.1	2.2
Implicit GDP Deflator (Percentage change)	2.5	2.2	2.5	2.6	2.7	2.7	2.7
Fixed-Weighted GDP Price Index (Percentage change)	3.1	2.7	3.0	3.2	3.3	3.4	3.4
CPI-U (Percentage change)[a]	3.0	2.6	3.1	3.3	3.4	3.4	3.4
Unemployment Rate (Percent)[b]	*6.8*	6.2	5.8	5.9	6.0	6.1	6.1
Three-Month Treasury Bill Rate (Percent)	3.0	4.1	5.5	5.1	4.9	4.9	4.9
Ten-Year Treasury Note Rate (Percent)	5.9	6.8	6.8	6.5	6.5	6.5	6.5
Tax Bases (Percentage of GDP)							
Corporate profits	7.3	7.5	7.2	7.0	6.8	6.7	6.6
Other taxable income	20.5	20.5	20.2	20.3	20.4	20.4	20.5
Wage and salary disbursements	<u>48.3</u>	<u>48.5</u>	<u>48.9</u>	<u>49.0</u>	<u>48.9</u>	<u>48.9</u>	<u>48.8</u>
Total	76.1	76.5	76.4	76.3	76.1	76.0	75.9

SOURCE: Congressional Budget Office.

a. Consumer price index for all urban consumers (CPI-U).

b. The Bureau of Labor Statistics changed the unemployment survey in January 1994. The CBO projections reported in this table use the new survey methodology. Data for 1993, shown in italics, use pre-1994 methodology.

CBO's medium-term projections do not reflect any attempt to estimate cyclical movements of the economy during the 1996-1999 period or the effects of fiscal policy on the year-to-year changes in economic activity. Instead, CBO's projection for real growth is designed to approximate the level of economic activity on average, including the possibility of above- or below-average growth. The projection for potential GDP is based on an analysis of the fundamental factors underlying the economy, including growth of the labor force, the rate of national saving, and growth of productivity. CBO projects the path for real GDP by assuming that it will grow smoothly to reach its average historical relationship with potential GDP by 1999 (see Figure 1-12).

Table 1-4.
Medium-Term Economic Projections for Fiscal Years 1994 Through 1999

	1993	Forecast		Projected			
		1994	1995	1996	1997	1998	1999
Nominal GDP (Billions of dollars)	6,295	6,677	7,070	7,431	7,800	8,179	8,581
Nominal GDP (Percentage change)	6.0	6.1	5.9	5.1	5.0	4.9	4.9
Real GDP (Percentage change)	3.2	3.9	3.3	2.5	2.2	2.1	2.2
Implicit GDP Deflator (Percentage change)	2.7	2.1	2.5	2.6	2.7	2.7	2.7
Fixed-Weighted GDP Price Index (Percentage change)	3.2	2.6	3.0	3.1	3.3	3.4	3.4
CPI-U (Percentage change)[a]	3.0	2.6	3.0	3.2	3.4	3.4	3.4
Unemployment Rate (Percent)[b]	7.0	6.3	5.9	5.8	6.0	6.1	6.1
Three-Month Treasury Bill Rate (Percent)	3.0	3.7	5.3	5.2	4.9	4.9	4.9
Ten-Year Treasury Note Rate (Percent)	6.2	6.4	6.9	6.6	6.5	6.5	6.5
Tax Bases (Percentage of GDP)							
Corporate profits	7.1	7.6	7.3	7.0	6.9	6.7	6.6
Other taxable income	20.6	20.5	20.3	20.3	20.4	20.4	20.5
Wage and salary disbursements	48.7	48.4	48.9	49.0	48.9	48.9	48.8
Total	76.4	76.5	76.5	76.4	76.2	76.0	75.9

SOURCE: Congressional Budget Office.

a. Consumer price index for all urban consumers (CPI-U).

b. The Bureau of Labor Statistics changed the unemployment survey in January 1994. The CBO projections reported in this table use the new survey methodology. Data for 1993, shown in italics, use pre-1994 methodology.

Growth

The projection for the years beyond 1995 is unusual in that the strong growth in the short-term forecast leaves the level of real GDP slightly above potential output at the end of 1995. Therefore, real GDP must grow more slowly than potential GDP in order to restore the gap between the two to its historical average. In the CBO projection, the growth of real GDP averages 2.2 percent between 1996 and 1999, slightly slower than the growth of potential GDP, which averages 2.4 percent during the same period. These rates of growth leave real GDP about 0.4 percent below the level of potential GDP in 1999, roughly equal to the average historical gap between these two variables.

CBO's projection for the growth of potential output is little changed since last winter's report. However, several of the components that underlie the projection of potential output have been revised. In its winter report, CBO highlighted three sources of uncertainty about the projection for potential output: the level of the NAIRU, slow growth of the labor force, and rapid growth of total factor productivity (TFP). Each has been revised since the winter forecast, but the revisions largely offset one another.

The Upward Revision to the NAIRU. CBO reestimated the benchmark used to measure the state of the business cycle, the nonaccelerating inflation

rate of unemployment (see Appendix B for a description of how the NAIRU is estimated). Using the old definition of the unemployment rate, the value of the new estimate is about 5.8 percent in 1993, or about 0.3 percentage points above the earlier estimate. The practical effect of this revision is to show that the economy was operating closer to its productive capacity in 1993 and early 1994 than previously thought. For example, under the earlier estimate of the NAIRU, CBO estimated that the gap between output and potential output was about 2 percent at the end of 1993. The new estimate, together with the strong growth of real GDP in the fourth quarter of 1993, implies that the gap was much smaller, perhaps 1.2 percent at the end of 1993, and has been virtually eliminated during the first half of 1994. The higher estimate of the NAIRU also indicates that the trend growth of potential output is slightly slower than previously thought.

CBO reestimated the NAIRU because of a growing consensus that the economy is rapidly approaching its productive capacity and could be in danger of overheating. The new estimate differs from the old for three reasons: first, it is calculated using a longer data sample; second, the data used for the calculation have been revised; and third, a new (and conceptually superior) measure of inflation is used for the calculation (see Appendix B).

The upward revision to the NAIRU is unrelated to the revision to the Current Population Survey (CPS) undertaken by the Bureau of Labor Statistics in early 1994 (see Box 1-1 for a discussion of the CPS revision). CBO estimates that the change in the CPS adds another one-quarter of a percentage point to the NAIRU, starting in 1994. Therefore, on the new basis, the estimate of the NAIRU is about 6 percent in early 1994. The adjustment for the new survey technique, however, is subject to an extreme degree of uncertainty and will be monitored in coming months to determine whether it is still justified.

Slower Growth of the Labor Force. As CBO pointed out in last winter's report, growth of the labor force has been unusually slow since the last business cycle ended in 1990. This slowdown stems primarily from a decline in the growth of par-

Figure 1-12.
Potential GDP Governs the Projection of GDP
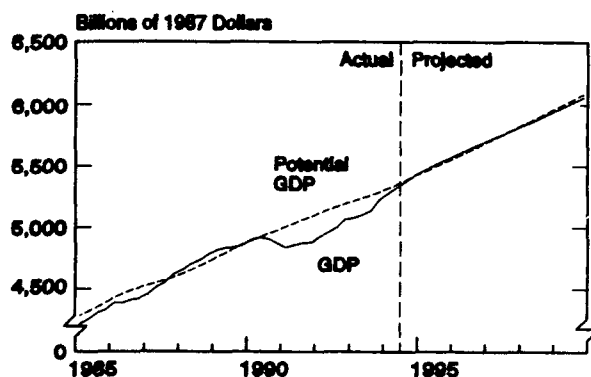
SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

ticipation rates in the labor force--the percentage of the working-age population that has or is actively seeking a job--not in a slowing of population growth. The major unresolved question is whether the tapering off of growth in the participation of women in the labor force and the fall in the participation rates of young people--both of which occurred about 1990--were short-run responses to a cyclic slowdown in employment opportunities or whether they represent a fundamental change in the preferences toward work of some members of the working-age population.

In the past, CBO's projections for growth in the labor force embodied an assumption that the slowdown was exclusively a short-run phenomenon and that participation rates would eventually regain their earlier trend. However, the experience of the last six months has added weight to the argument that participation rates will not rebound as much as previously thought. Currently, CBO projects that the labor force will grow at an average of 1.3 percent during the period from 1996 through 1999, a rate that is about 0.1 percentage point below that assumed last winter.

The Rapid Growth of Total Factor Productivity. Although the years since the recession have been somewhat bleak for employment growth, they have witnessed impressive gains in productivity. Newly released data indicate that total factor productivity grew 2 percent in 1993, building on a hefty 2.7 percent gain in 1992.[6] Both of these rates are above the trend rate observed since the early 1980s, and both have raised CBO's estimate of trend growth in TFP. The improved outlook for productivity, combined with a stronger outlook for investment in capital goods, has offset the downward pressure on growth of potential output caused by the higher NAIRU and slower growth of the labor force.

---

6.   These estimates of total factor productivity were calculated by CBO. TFP is a measure of the productivity of both labor and capital. A more comprehensive measure than labor productivity, it is defined as the growth in output above the growth of labor and capital inputs.

Inflation

CBO projects that the gradual rise in the rate of inflation during the short-term forecast will taper off in the years beyond 1995, and the growth of the CPI-U (consumer price index for all urban consumers) will average 3.4 percent a year during the medium term. The GDP deflator is projected to grow at an average rate of 2.7 percent between 1996 and 1999. Both of these projections are higher than was foreseen last winter because the economy is closer to potential than was previously thought.

Interest Rates

CBO projects that interest rates, both long- and short-term, will decline slightly between 1996 and 1999, though their ultimate levels are higher than what was projected last winter. The projection for the three-month Treasury bill rate drops from 5.6 percent at the end of 1995 to 4.9 percent during 1996 and thereafter. The 10-year Treasury note rate eases from 6.6 percent at the end of 1995 to 6.5 percent during 1996 and remains steady at that rate through 1999.

Risks to CBO's Economic Forecast

The CBO economic forecast reflects a middle path among the uncertainties that affect any forecast. But it is certainly not the only possible outcome. Forecasters typically discuss two other views: a typical mature expansion through the end of 1995 (which would carry a high risk of a recession sometime after the 1994-1995 forecast period), and a soft landing (in which the risk of recession soon after 1995 is reduced by avoiding rapid growth in the near term). Those are the relatively well-foreseen possibilities. In addition, of course, the forecast is subject to risks that are not currently foreseen: in the past, these unforeseen developments have accounted for a large part of forecast error.

A Typical Mature Expansion

The CBO forecast does not depict the typical behavior of an economy as its expansion matures and reaches a business cycle peak. Normally, when the economy approaches its potential, it continues to grow faster than its potential for some time, and actual GDP rises above potential GDP (see Figure 1-13). That fast growth drives up inflation, short-term interest rates rise rapidly, and the economy goes into recession. Short-term interest rates usually exceed long-term rates for a period of time--a condition that signals a considerable degree of monetary restraint. Every postwar expansion in the United States has ended with a sharp increase in short-term interest rates (see Figure 1-1). The record is similar in other countries. In the CBO forecast, however, the level of real GDP barely exceeds its potential and then quickly falls back. Although inflation and short-term interest rates increase, they rise less than in preceding expansions.

If the economy did follow the typical end-of-expansion path, real GDP would be higher than in the current CBO forecast. However, if such rapid

Figure 1-13.
The GDP Gap: GDP Typically Overshoots Its Mark
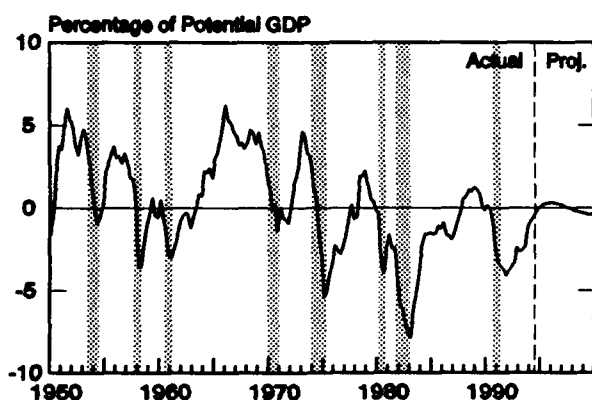
SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

NOTE: The GDP gap reported here represents GDP minus potential GDP expressed as a percentage of potential. Historically, expansions typically overshoot the mark so that GDP comes to exceed potential GDP. The actions of the Federal Reserve Board influence this outcome.

growth materialized, the Federal Reserve would probably act more promptly to limit growth than it has in the past, and as a result inflation need not be substantially higher. In 1988 and 1989, and again this year, the Federal Reserve demonstrated its willingness to raise rates to limit growth even before significant inflation arose. In addition, the Chairman of the Federal Reserve has many times emphasized his determination to avoid letting inflation increase again after enduring two recessions to lower it. Thus, the typical path would have somewhat higher growth and significantly higher short-term interest rates than the CBO forecast. One explanation for the rise in long-term interest rates that occurred this spring would be that participants in the financial markets put a lot of weight on the typical path.

Such an outlook would raise the prospect of a recession to follow the end of the forecast period. Based on past experience, and the lags in operation of monetary policy, a recession would most likely occur beyond the end of CBO's short-term forecast horizon--that is, in the 1996-1999 period when CBO does not attempt to predict cyclical movements in the economy.

Why is this typical end-of-cycle scenario not CBO's forecast? First, the economy may not have as much momentum as it did in previous business cycles. This expansion has progressed at a more moderate pace than average, stemming largely from the unusual degree of fiscal restraint and the need to absorb structural problems such as overbuilding in commercial construction, changes in financial institutions, and the restructuring of many large corporations. Although these structural problems are less of a problem now than during the last three years, fiscal policy continues to be much more restrictive this year than is usually the case for periods when the economy approaches potential. Second, the Federal Reserve acted sooner than usual to restrain inflationary pressures, and this action lessens the likelihood that the economy will continue to grow faster than potential for a long period. Last, the two deepest recessions of the postwar period were preceded by major supply shocks--oil and other commodity prices rose rapidly in 1973 and early 1974, and oil prices jumped again in 1979. Although a similar supply shock is possible for the forecast pe-

riod, CBO does not consider it likely. Therefore, extremely rapid rises in inflation and interest rates, and the resulting deep recession, are less likely than simple averages of past expansions and recessions indicate.

A Soft Landing

Another view of the economy is that the growth of demand is already running out of steam. As a result, growth will slow without much further action by the Federal Reserve. Forecasters who maintain this outlook point in particular to a slowdown in final sales, especially the purchases of consumer durables; the buildup of wholesale and retail inventories that occurred in the second quarter of 1994; and the continued weakness of net exports. In addition, they argue, the rise in long-term interest rates that occurred this spring will dramatically slow housing starts and business fixed investment.

If this scenario developed, inflation would not increase and the Federal Reserve would not need to raise short-term interest rates much further. Although such a soft landing indicates slightly slower growth in the near term, it is optimistic in the sense that it would increase the likelihood that the onset of the next recession would be later than that implied by the scenario for a mature expansion.

Why is this soft-landing scenario not in CBO's forecast? The main reason is that CBO does not detect any strong evidence that the factors driving the past year's growth--especially business investment--have run their course. The evidence on which CBO's forecast is based was described earlier in this chapter. The economy is likely to continue to grow faster than its potential rate for a few more quarters. Further increases in rates combined with the usual slowing of investment after a period of rapid growth will be necessary to slow growth to its potential.

Other Forecasts. The Administration and the July *Blue Chip* consensus forecasts call in large part for soft landings. That is, the economy slows quickly to a rate of growth close to that of potential by early 1995 and, in real terms, short-term interest

rates do not rise significantly between now and 1995 (see Table 1-5).

The current CBO forecast for real growth in 1994 is higher by about 0.5 percentage points than the Administration or *Blue Chip* forecasts and somewhat higher than the average of the upper and lower bounds of the ranges anticipated by the Federal Reserve. All forecasts, however, indicate GDP growth close to that of the economy's potential by 1995. On the inflation front, the CBO, Administration, and *Blue Chip* forecasts fall within the ranges anticipated by the Federal Reserve for 1994 and 1995. Since February, the Federal Reserve has revised its inflation forecast for 1994 from about 3 percent to the range of 2.75 percent to 3.0 percent, and expects inflation to increase moderately from 1994 to 1995.[7] In keeping with its outlook for stronger growth, the CBO outlook for civilian unemployment in 1995 is marginally lower than the other forecasts.

The forecasts differ most in their outlook for short-term interest rates. The CBO forecast for the three-month Treasury bill rate is almost 75 basis points higher than that forecast by the Administration and *Blue Chip* in 1995. Since all three forecasts project approximately the same small increase in inflation of about 0.3 percent from 1994 to 1995, real interest rates rise by more in the CBO outlook.

Wider-Ranging Risks

Other risks to the forecast exist, but they are difficult or impossible to evaluate. If it turns out that potential GDP is growing faster than CBO's current estimate of 2.4 percent, the noninflationary growth of the economy could be substantially greater than in the CBO forecast, both in the short run and over the period to 1999. Although CBO believes rapid growth in productivity in the last three years is a cyclical phenomenon and not a change in trend, some analysts feel trend productivity growth in the

---

7. Note that the Federal Reserve provided a forecast only for 1994 in its *Monetary Policy Report to the Congress Pursuant to the Full Employment and Balanced Growth Act of 1978* (February 1994). The range given--known as the central tendency--includes the majority of the forecasts of Federal Open Market Committee members and other Federal Reserve Bank presidents.

Table 1-5.
Comparison of Congressional Budget Office, Administration, Federal Reserve, and *Blue Chip* **Economic Forecasts**

		Forecast	
	1993	1994	1995

	Fourth Quarter to Fourth Quarter (Percentage change)		
Nominal GDP			
CBO	5.4	6.2	5.3
Administration	5.4	5.8	5.6
Federal Reserve[a]	5.4	5.50 to 6.00	5.00 to 5.50
Blue Chip	5.4	5.9	5.8
Real GDP[b]			
CBO	3.1	3.6	2.7
Administration	3.1	3.0	2.7
Federal Reserve[a]	3.1	3.00 to 3.25	2.50 to 2.75
Blue Chip	3.1	3.1	2.6
Consumer Price Index[c]			
CBO	2.7	2.8	3.2
Administration	2.7	2.9	3.2
Federal Reserve[a]	2.7	2.75 to 3.00	2.75 to 3.50
Blue Chip	2.7	2.8	3.4

	Average Level in the Fourth Quarter (Percent)		
Civilian Unemployment Rate[d]			
CBO	*6.5*	6.0	5.8
Administration	*6.5*	6.2	6.2
Federal Reserve[a]	*6.5*	6.00 to 6.50	6.00 to 6.25
Blue Chip	*6.5*	6.1	5.9

	Calendar Year Averages (Percent)		
Three-Month Treasury Bill Rate			
CBO	3.0	4.1	5.5
Administration	3.0	4.0	4.7
Federal Reserve[a]	3.0	n.a.	n.a.
Blue Chip	3.0	4.0	4.8
Ten-Year Treasury Note Rate			
CBO	5.9	6.8	6.8
Administration	5.9	6.8	7.0
Federal Reserve[a]	5.9	n.a.	n.a.
Blue Chip[e]	5.9	6.8	7.2

SOURCES: Congressional Budget Office; Office of Management and Budget; Federal Reserve Board; Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators* (July 10, 1994).

NOTE: n.a. = not applicable.

a. The Federal Reserve figures are the ranges--known as the central tendency--that include the majority of the forecasts of Federal Open Market Committee members and other Federal Reserve Bank presidents.

b. Based on constant 1987 dollars.

c. The consumer price index for all urban consumers (CPI-U).

d. The Bureau of Labor Statistics changed the unemployment survey in January 1994. The CBO forecast reported in this table uses the new survey methodology. Data for 1993, shown in italics, use pre-1994 methodology.

e. *Blue Chip* does not project a 10-year note rate. The values shown here for the 10-year note rate are based on the *Blue Chip* projections of the Aaa bond rate, adjusted by CBO to reflect the estimated spread between Aaa bonds and 10-year Treasury notes.

1990s will indeed be higher. If so, the Federal Reserve would have to recognize the potential for higher growth, a difficult task. The main way higher potential growth would manifest itself is through lower inflation, but inflation lags behind growth by a substantial period. By contrast, the goal of the Federal Reserve is to act in anticipation of inflation.

If other countries also expand at the same time, interest rates could be even higher than is typical at the end of a business-cycle expansion. When business cycles are coordinated among countries, they can have a powerful effect on world capital markets. In this case, the U.S. expansion, which started several years before the recoveries in Europe and Japan, would have to be prolonged long enough for the other economies to catch up.

Possibilities of a weaker outcome also exist. The slow growth of the labor force in the United States could sharply reduce the growth of potential output, implying that even moderate growth will cause the economy to be further above potential than CBO estimates. Increases in inflation would then be larger and sooner than CBO anticipates, and these increases would limit the Federal Reserve's freedom of movement. If that were to occur, sharply higher interest rates in 1995 and a greater risk of recession in 1996 could well be the result.

Finally, the role of political events cannot be discounted. The Persian Gulf War complicated policy management in 1990 and played an important role in the recession. Certainly, nothing suggests that the international scene is more stable now than it was in 1990: the potential for destabilizing events exists in the Balkans, several countries of the former Soviet Union, and Korea. How these events might play out in the world economy is impossible to predict.

The Budget Outlook

According to the latest projections of the Congressional Budget Office, the deficit in the fiscal year ending on September 30, 1994, will barely top $200 billion. That will be the smallest deficit chalked up in five years. Although the intervening years witnessed several events that temporarily ballooned the deficit--including a recession and massive spending to resolve failed savings and loan institutions--there is no denying the improvement. CBO expects that the deficit in 1995 will fall again in dollar terms (to $162 billion) and will slip below 2½ percent of gross domestic product--the smallest deficit, in relation to GDP, in 16 years. Much of the credit for the turnaround goes to the package of spending cuts and tax increases passed a year ago, the Omnibus Budget Reconciliation Act of 1993 (OBRA-93).

The year-to-year improvement in the deficit stalls after 1995. The deficit gets stuck at about 2½ percent of GDP for several years and then starts climbing at the end of the decade. In dollar terms, the deterioration starts sooner--indeed, immediately after 1995.

The near-term outlook is somewhat sunnier than in CBO's last report to the Congress. The deficit in 1994 will likely be about $26 billion smaller than CBO foresaw last winter; CBO has also trimmed $17 billion from its projected deficit for 1995. Although the revisions to revenues and spending are individually modest--amounting to less than 2 percent of total revenues and outlays--they nevertheless join to reduce the deficit noticeably. They are almost entirely attributable to new economic information and other developments; hardly any legislation affecting the budget totals has been adopted so far this year. These near-term revisions do not alter CBO's view of long-run budget trends. By the end of the decade, projected deficits are marginally bigger than those CBO published last winter.

The most striking aspect of CBO's semiannual budget review is the absence of any big news. Seasoned budget-watchers are accustomed to significant revisions in the budget outlook every six months or so, along with sharp disagreements between the projections of CBO and the Administration. Neither is present in this report. Indeed, in the 12 months since the Congress passed OBRA-93, CBO has issued several new sets of projections, but none has deviated very much from its predecessor (see Figure 2-1). All have conveyed the same underlying message: that OBRA-93 did not erase the deficit but did arrest its upward march for about five years. Nor are there significant differences between the budget stories as told by CBO and by the Administration in its midsession review, a comparison that is presented later in this chapter.

Figure 2-1.
Changes in CBO Deficit Projections, March 1993 to August 1994 (By fiscal year)
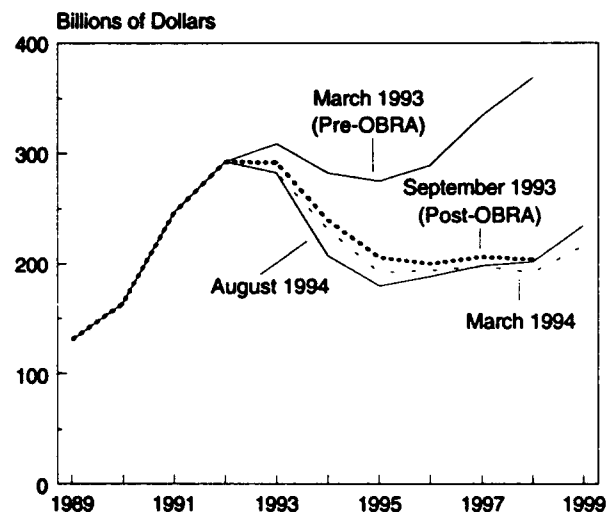
SOURCE: Congressional Budget Office.

The Deficit Outlook

At around $200 billion, the deficit in 1994 will be down by more than $50 billion from last year's level and will be the smallest since 1989. Two concerted efforts at deficit reduction took place in the meantime, in 1990 and in 1993. For a few years in the late 1980s, the deficit had seemed to settle at about $150 billion but then shot up. To make matters more awkward, statutory targets on the books at the time--contained in the law popularly known as Gramm-Rudman-Hollings--stipulated that the deficit was supposed to be falling precipitously, not rising. The bleak outlook spurred a months-long budget summit between the Congress and the Bush Administration, culminating in the Omnibus Budget Reconciliation Act of 1990. And when the budget numbers continued to worsen, despite the cuts adopted in 1990, a second big package (OBRA-93) followed less than three years later.

Both packages curbed spending, raised revenues, and downplayed fixed deficit targets, which had proved to be elusive in practice, in favor of reforms in the budget process to ensure that the hard-won savings would not be undone. Both also achieved significant savings on the deficit front--about $500 billion and $400 billion over their respective five-year horizons, according to past CBO estimates.[1] Yet as was widely acknowledged when OBRA-93 was enacted, the deficit is not about to fade away in the absence of further policy changes.

Part of the deficit's jump in the early 1990s stemmed from temporary causes that were well recognized at the time. In fact, although economists and financial market analysts use the deficit as a rough-and-ready measure of the government's drain on national saving and on credit markets, they routinely adjust it for ephemeral factors.

A prime example was the huge outlays for deposit insurance in the 1989-1991 period as the

government moved to close or merge hundreds of ailing savings and loan institutions and, less prominently, commercial banks. Although such spending swells the government's outlays, economists treat it as involving little or no fiscal stimulus. After all, most of the losses symbolized by deposit insurance outlays were incurred in the past--when institutions made bad loans and investments--even though those losses were invisible in the budget totals at the time. The government's subsequent actions to protect insured depositors, who had regarded their funds as safe, injected no extra stimulus into the economy. And some deposit insurance spending results in the acquisition of assets by the government that are sold later, explaining why such spending swung below zero beginning in 1993.

A second factor that is regularly segregated when eyeing the deficit's trend is the effect of the business cycle. When the economy is performing far beneath its potential--as in a recession or the early stages of a recovery--revenues falter, outlays for programs such as unemployment insurance rise, and the deficit is bigger than it would be otherwise. These effects are captured in the cyclical deficit. The deficit that remains, after subtracting the cyclical deficit and spending for deposit insurance, cannot be ascribed to a weak economy or to ephemeral factors, and is labeled the standardized-employment, or structural, deficit. In 1991 and 1992, cyclical effects accounted for more than one-fourth of the record-high deficits. But in today's buoyant economy, as documented in Chapter 1, their contribution to the red ink is negligible.

A deficit of about $200 billion in 1994 marks a dramatic improvement over the 1991-1993 period taken at face value. The improvement is less pronounced but still impressive when the deficit is converted to a standardized-employment basis by adjusting it for the effects of deposit insurance spending and the business cycle (see Table 2-1 and Summary Figure 1). By either measure, the deficit bulged in the early 1990s and was reined in by OBRA-93.

Whatever measure is chosen, CBO's latest deficit projections tell the same story about the 1995-1999 period. The deficit falls from recent levels through mid-decade, flattens, then begins to climb

---

1. See Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1992-1996* (January 1991), Chapter 3, and *The Economic and Budget Outlook: An Update* (September 1993), Chapter 2.

again, picking up steam in 1999. This pattern is not an accident; pressures created by the growth in health care spending and federal interest costs and by the expiration of the stringent caps on discretionary spending in 1999 drive up spending faster than revenues. Indeed, CBO's broadbrush projections for a 10-year period suggest that such fundamental long-run dynamics push the deficit up, not down (see Box 2-1).

Changes in the Budget Outlook Since Last Winter

CBO has revised its budget projections relatively little since the beginning of the year. On balance, CBO has trimmed its projections of the deficit in 1994 and 1995 but upped them in 1998 and 1999, with very small changes in the intervening years (see Table 2-2).

Table 2-1.
CBO Baseline Deficit Projections (By fiscal year)

	Actual 1993	1994	1995	1996	1997	1998	1999
In Billions of Dollars							
Total Deficit Assuming Discretionary Caps	255	202	162	176	193	197	231
Deficit Excluding Deposit Insurance	283	207	180	188	198	202	235
Standardized-Employment Deficit[a]	221	184	183	195	200	196	223
On-Budget Deficit (Excluding Social Security and Postal Service)	300	258	233	254	276	285	325
Memorandum:							
Deposit Insurance	-28	-5	-17	-12	-5	-5	-4
Off-Budget Surplus							
Social Security	47	58	71	77	83	89	94
Postal Service	-1	-2	-1	1	b	-1	b
Total, Off-Budget Surplus	45	57	71	78	83	88	94
Hospital Insurance Surplus	4	4	7	6	b	-5	-14
As a Percentage of GDP							
Total Deficit Assuming Discretionary Caps	4.0	3.0	2.3	2.4	2.5	2.4	2.7
Deficit Excluding Deposit Insurance	4.5	3.1	2.5	2.5	2.5	2.5	2.7
Standardized-Employment Deficit[a,c]	3.4	2.7	2.6	2.6	2.6	2.4	2.6

SOURCE: Congressional Budget Office.

a. Excludes the cyclical deficit and deposit insurance spending.

b. Less than $500 million.

c. Expressed as a percentage of potential GDP.

Box 2-1.
The Ten-Year Budget Outlook

The Congressional Budget Office's (CBO's) latest look at trends in revenues and spending over the next 10 years tells a familiar story--namely, that the federal deficit is expected to head back up in the late 1990s. The deficit is projected to double from around $200 billion in 1998 to nearly $400 billion by 2004 (see table at right). A more meaningful figure, the ratio of the deficit to gross domestic product (GDP), marches steadily upward from 2.4 percent to 3.6 percent over the same period. This trend clearly indicates that the savings achieved in 1990 and 1993 did not bring the deficit permanently under control.

In deriving its 10-year projections, CBO does not assiduously estimate every component of revenue and spending as it does for the full-fledged baseline. Rather, it attempts to capture broad trends in revenues and spending based on reasonable assumptions about the path of the economy and other factors. Such projections aid policymakers in looking beyond the usual five-year window that is mandated for budget estimates and Congressional scorekeeping.

The current extrapolation points to a deficit of $397 billion, or 3.6 percent of GDP, in 2004. This estimate barely differs from CBO's last such estimate of $385 billion, or 3.5 percent of GDP, presented last April in CBO's analysis of the President's budgetary proposals.

As before, the long-run projections single out discretionary spending and health care programs as the only broad areas likely to grow or shrink significantly--in relation to GDP--over the next 10 years. The dollar caps on discretionary outlays push such spending down from an estimated 8.2 percent of GDP in 1994 to 6.7 percent in 1998. Although CBO assumes that discretionary spending will increase with inflation beginning in 1999 (after the caps expire), such outlays would still drift down as a percentage of GDP, reaching 6.1 percent by 2004. This continued, albeit slower, decline results simply from the assumption that GDP will grow in real terms but discretionary spending will not.

CBO expects, however, that the two big health care programs, Medicare and Medicaid, will continue to grow faster than GDP, as they have since they were created in the mid-1960s. Outlays for these two programs combined are expected to climb from 3.6 percent of GDP in 1994 to 6.2 percent in 2004. Through 1998, the drop in discretionary spending (in relation to GDP) is enough to outweigh the steady rise in health care spending, but that is no longer true once the caps expire. Thus, all other things being equal, the deficit would start to climb as a percentage of GDP. And other things are roughly equal: other major categories of spending, as well as federal revenues, are expected to remain nearly constant as a share of GDP for the next decade. Social Security benefits, in particular, hover just under 5 percent of GDP through 2004--when the oldest members of the baby-boom generation are still at least three years from eligibility for retirement benefits. As a consequence of the deficit outlook, the debt-to-GDP ratio is basically flat (at about 51 percent) through 1998 but then inches up, reaching 56 percent by 2004.

Any long-range projection inherently contains a great deal of uncertainty. Over the 2000-2004 period, CBO assumes inflation (as measured by the consumer price index) of 3.4 percent and real economic growth of 2.3 percent annually. Interest rates are notoriously hard to forecast but are vitally important to the budget outlook, given the growing federal debt; CBO assumes a short-term interest rate of 4.9 percent on three-month Treasury bills and a long-term interest rate of 6.5 percent on 10-year Treasury notes. Of course, the economy will deviate from this path in ways that cannot be anticipated. Federal spending and revenues also may diverge from their assumed paths for unpredictable reasons. But from today's vantage point, a prudent observer should expect the deficit to grow unless the tax and spending policies now in place are changed.

The Budget Outlook Through 2004 (By fiscal year)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
In Billions of Dollars											
Revenues	1,265	1,363	1,433	1,492	1,562	1,632	1,713	1,799	1,891	1,988	2,091
Outlays											
Discretionary	545	546	550	547	547	566	585	605	626	647	669
Mandatory											
Social Security	317	333	350	368	388	408	430	452	476	501	528
Medicare	158	177	195	216	238	263	290	320	354	391	434
Medicaid	84	96	108	121	135	151	168	186	206	227	250
Civil Service and Military Retirement	63	65	68	71	74	79	83	87	91	95	100
Other	172	175	176	189	197	205	213	220	227	235	243
Subtotal	794	847	898	965	1,032	1,107	1,183	1,265	1,354	1,451	1,555
Deposit insurance	-5	-17	-12	-5	-5	-4	-2	-2	-2	-2	-2
Net interest	202	226	245	253	264	277	290	307	325	346	368
Offsetting receipts	-68	-77	-72	-75	-80	-83	-86	-90	-94	-98	-103
Total	1,467	1,525	1,609	1,684	1,758	1,863	1,970	2,086	2,209	2,343	2,488
Deficit	202	162	176	193	197	231	257	287	319	355	397
Deficit Excluding Deposit Insurance	207	180	188	198	202	235	260	288	321	357	399
Debt Held by the Public	3,440	3,611	3,801	4,011	4,226	4,476	4,753	5,059	5,397	5,771	6,188
As a Percentage of GDP											
Revenues	19.0	19.3	19.3	19.1	19.1	19.0	19.0	19.0	19.0	19.0	18.9
Outlays											
Discretionary	8.2	7.7	7.4	7.0	6.7	6.6	6.5	6.4	6.3	6.2	6.1
Mandatory											
Social Security	4.7	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.8
Medicare	2.4	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.7	3.9
Medicaid	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
Civil Service and Military Retirement	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2
Subtotal	11.9	12.0	12.1	12.4	12.6	12.9	13.1	13.4	13.6	13.8	14.1
Deposit insurance	-0.1	-0.2	-0.2	-0.1	-0.1	a	a	a	a	a	a
Net interest	3.0	3.2	3.3	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3
Offsetting receipts	-1.0	-1.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-0.9	-0.9
Total	22.0	21.6	21.6	21.6	21.5	21.7	21.8	22.0	22.2	22.3	22.5
Deficit	3.0	2.3	2.4	2.5	2.4	2.7	2.9	3.0	3.2	3.4	3.6
Deficit Excluding Deposit Insurance	3.1	2.5	2.5	2.5	2.5	2.7	2.9	3.0	3.2	3.4	3.6
Debt Held by the Public	51.5	51.1	51.2	51.4	51.7	52.2	52.7	53.4	54.1	55.0	56.1

SOURCE: Congressional Budget Office.

a. Less than 0.05 percent of GDP.

New legislation changes the outlook by less than $500 million in any year. Only two significant measures have been enacted. One made it easier for the Federal Housing Administration to sell property it had obtained through foreclosure, resulting in lower holding costs over many years. Under the reformed accounting rules adopted in 1990 for credit programs, the budget recorded the expected savings of about $400 million all at once when the legislation was enacted.

The other, the Federal Workforce Restructuring Act of 1994, mandated reductions in federal civilian employment of about 10 percent between now and 1999 and permitted agencies to offer buyouts of up to $25,000 through March 1995 to induce employees to leave. Because those changes would lead to additional retirement benefits in the near term, the act also directed agencies temporarily to contribute more to the retirement funds. Only these narrow retirement-related effects of the legislation show up

Table 2-2.
Changes in CBO Baseline Deficit Projections (By fiscal year, in billions of dollars)

	1994	1995	1996	1997	1998	1999
Winter Baseline Deficit	228	180	180	192	187	213
Legislative Changes	a	a	a	a	a	a
Economic Changes						
Revenues	-9	-20	-20	-12	·ʰ·	-5
Outlays						
Net interest	3	15	17	13	13	14
Other outlays	-1	-3	-3	-2	-1	4
Subtotal, Outlays	2	12	14	11	12	17
Deficit	-8	-8	-5	-2	6	12
Technical Changes						
Revenues	-6	-4	-2	-1	1	3
Outlays						
Deposit insurance	-1	-5	2	1	a	a
Student loans	-2	a	1	a	a	a
Earned income tax credit	1	2	2	2	2	2
Medicaid and Medicare	-4	0	0	0	0	0
Offsetting receipts from agencies' contributions to retirement funds	a	1	1	1	2	2
Other	-6	-3	-3	-1	-1	-1
Subtotal, Outlays	-12	-5	4	4	3	3
Deficit	-18	-10	2	3	4	6
Total Changes	-26	-17	-4	1	10	18
Summer Baseline Deficit	202	162	176	193	197	231

SOURCE: Congressional Budget Office.

NOTE: Revenue increases are shown with a negative sign because they reduce the deficit.

a. Less than $500 million.

on the official pay-as-you-go scorecard that the Congress uses to monitor legislation, and they amount roughly to zero over the five-year period. The savings from the employment reductions will materialize in agencies' payroll accounts, which are a significant part (approximately one-fifth) of the discretionary spending cluster that is subject to the statutory caps; that is, savings on the personnel front were virtually inescapable under the belt-tightening already demanded by the caps.

A more important source of revision is changes in the economic outlook. Indeed, the underlying pattern of changes in the deficit outlook--first down, then up--is explained by this source. As noted in Chapter 1, the economy and, hence, revenues have perked up faster than anticipated. But over time, revenues return nearly to the path that CBO previously expected; after all, the economy cannot operate above its potential indefinitely. At the same time, less favorable trends take on added importance. Chief among them is the outlook for interest rates. Partly as a consequence of the buoyant economy, CBO now expects noticeably higher interest rates in the next two years than it did before, though by 1999 the increase tapers off to less than half a percentage point. The federal debt held by the public--now $3.4 trillion and expected to approach $4.5 trillion by 1999--is big enough that even such seemingly modest revisions in the assumptions about interest rates boost spending significantly. And a similar twist affects the projections for noninterest spending: reductions in outlays for unemployment insurance and similar programs occur early but give way to the extra spending that gradually results from higher inflation. In sum, revisions attributable to the economic forecast shrink the deficit by $8 billion in both 1994 and 1995 but boost it by $12 billion in 1999.

Revisions that do not result from economic developments or new legislation are dubbed technical and, as this definition implies, can stem from a variety of reasons. On the revenue front, technical revisions are favorable for a few years but then fade into insignificance. Upward revisions to taxes on corporate profits reflect the strong collections from this source (stronger even than suggested by data on profits) and dominate the numbers at first, but they are gradually overtaken by weaker trends in two much bigger revenue sources, individual income taxes and social insurance taxes.

On the spending side, deposit insurance--a volatile category of spending--is down by $5 billion in 1995, chiefly from lower estimates of spending by the Resolution Trust Corporation as it wraps up its phase of the savings and loan cleanup before passing the baton to the Savings Association Insurance Fund by July 1995. A downward revision in the outlays for the government's student loan program is mostly a one-shot affair: the Student Loan Marketing Administration (nicknamed Sallie Mae) repaid its entire $5 billion debt to the Treasury two years ahead of schedule. CBO had expected Sallie Mae to repay $2 billion of its debt in 1994 and the remaining $3 billion in 1996; Sallie Mae's decision to pay the full amount this year leads to equal and offsetting revisions in 1994 and 1996.

The earned income tax credit, a program aimed chiefly at supplementing the earnings of low-income families with children, is running $1 billion to $2 billion a year higher than expected. Spending for Medicare and Medicaid in 1994 is down about $4 billion from previous projections. Because the reasons for the slowdown are murky--and because $4 billion represents less than 2 percent of those programs' combined outlays--CBO has opted not to revise its 1995-1999 projections, which are serving as a base for estimating the budgetary effects of the competing health care proposals under consideration in the Congress. Estimated receipts of government retirement funds (such as Civil Service Retirement and Social Security) from federal agencies on behalf of their employees--an intrabudgetary collection--have been pruned by as much as $2 billion in 1999, partly because of the employment cuts that are now incorporated in CBO's projections and partly to reflect other new information about coverage and contribution rates.

Finally, other revisions are negligible in all years except 1994, when they lead CBO to trim its earlier projections by $6 billion. Lower-than-expected outlays in many departments this year--affecting programs as varied as international aid, space, justice, environmental spending, and credit programs--are largely responsible. Such trends, though, never send clear-cut messages. Outlays can

emerge from the spending pipeline any time after agencies commit or obligate the budget authority that they are granted in appropriation acts; since agencies do commit most of their allowable money, sluggish disbursements in one year presumably will be offset in some future year. Furthermore, most of the programs that are spending less than anticipated this year are governed by the discretionary spending caps. The Congress decided in its budget resolution adopted in May to spend almost the full amount allowable under the outlay caps in 1995--mimicking CBO's baseline assumption and hence obviating the

need for any revision in 1995 and beyond. That budget resolution is guiding the 13 regular appropriation bills now wending their way through the Congress for the fiscal year beginning October 1.

CBO Baseline Projections

In 1994, federal revenues are expected to equal $1,265 billion and outlays $1,467 billion. The major components of these totals, and their pro-

Table 2-3.
CBO Baseline Budget Projections, Assuming Compliance
with Discretionary Spending Caps (By fiscal year)

	Actual 1993	1994	1995	1996	1997	1998	1999
In Billions of Dollars							
Revenues							
Individual income	510	549	600	637	667	703	741
Corporate income	118	141	146	149	153	157	162
Social insurance	428	463	498	523	545	569	594
Other	98	112	119	124	127	131	135
Total	1,154	1,265	1,363	1,433	1,492	1,562	1,632
On-budget	842	929	1,003	1,055	1,096	1,148	1,200
Off-budget	312	336	360	378	395	414	433
Outlays							
Discretionary[a]							
Defense	292	280	273	277	283	291	298
International	22	20	21	21	22	22	23
Domestic	228	244	260	267	273	282	290
Unspecified reductions	0	0	-8	-15	-31	-48	-46
Subtotal	542	545	546	550	547	547	566
Mandatory	762	794	847	898	965	1,032	1,107
Deposit insurance	-28	-5	-17	-12	-5	-5	-4
Net interest	199	202	226	245	253	264	277
Offsetting receipts	-67	-68	-77	-72	-75	-80	-83
Total	1,408	1,467	1,525	1,609	1,684	1,758	1,863
On-budget	1,142	1,188	1,236	1,308	1,372	1,432	1,525
Off-budget	267	279	289	300	312	326	339
Deficit	255	202	162	176	193	197	231
On-budget deficit	300	258	233	254	276	285	325
Off-budget surplus	45	57	71	78	83	88	94
Debt Held by the Public	3,247	3,440	3,611	3,801	4,011	4,226	4,476

SOURCE: Congressional Budget Office.

a. Discretionary caps are set by law through fiscal year 1998. Discretionary outlays for 1999 are estimated as the 1998 amount adjusted for inflation. Estimates for particular subcategories--defense, international, and domestic--represent amounts that would be spent if 1994

jected growth over the next five years, are depicted in Table 2-3.

The Outlook for Revenues

Federal revenues are expected to equal 19.0 percent of GDP in 1994, rise to 19.3 percent in 1995 and 1996, then slip back to 19.0 percent by 1999. Individual income taxes are the only source of revenue that outpaces GDP, according to CBO's projections. From 8.2 percent of GDP this year, such taxes jump

to 8.5 percent in 1995 and essentially stay there--a pattern largely traceable to the tax increases levied by OBRA-93. That law approaches its full revenue potential in fiscal year 1995. Its contributions in fiscal year 1994 are smaller, for two reasons: higher withholding from wages and salaries did not begin until January 1994; and on April 15, taxpayers were allowed to pay only one-third of the extra liabilities OBRA imposed on high-income people for calendar year 1993 (with the remaining two-thirds deferred to later years). The government's other major sources of revenue--corporate income taxes, social insurance

Table 2-3.
Continued

	Actual 1993	1994	1995	1996	1997	1998	1999
	As a Percentage of GDP						
Revenues							
Individual income	8.1	8.2	8.5	8.6	8.5	8.6	8.6
Corporate income	1.9	2.1	2.1	2.0	2.0	1.9	1.9
Social insurance	6.8	6.9	7.0	7.0	7.0	7.0	6.9
Other	1.6	1.7	1.7	1.7	1.6	1.6	1.6
Total	18.3	19.0	19.3	19.3	19.1	19.1	19.0
On-budget	13.4	13.9	14.2	14.2	14.1	14.0	14.0
Off-budget	5.0	5.0	5.1	5.1	5.1	5.1	5.0
Outlays							
Discretionary							
Defense	4.6	4.2	3.9	3.7	3.6	3.6	3.5
International	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Domestic	3.6	3.7	3.7	3.6	3.5	3.4	3.4
Unspecified reductions	0	0	-0.1	-0.2	-0.4	-0.6	-0.5
Subtotal	8.6	8.2	7.7	7.4	7.0	6.7	6.6
Mandatory	12.1	11.9	12.0	12.1	12.4	12.6	12.9
Deposit insurance	-0.4	-0.1	-0.2	-0.2	-0.1	-0.1	b
Net interest	3.2	3.0	3.2	3.3	3.2	3.2	3.2
Offsetting receipts	-1.1	-1.0	-1.1	-1.0	-1.0	-1.0	-1.0
Total	22.4	22.0	21.6	21.6	21.6	21.5	21.7
On-budget	18.1	17.8	17.5	17.6	17.6	17.5	17.8
Off-budget	4.2	4.2	4.1	4.0	4.0	4.0	3.9
Deficit	4.0	3.0	2.3	2.4	2.5	2.4	2.7
On-budget deficit	4.8	3.9	3.3	3.4	3.5	3.5	3.8
Off-budget surplus	0.7	0.8	1.0	1.0	1.1	1.1	1.1
Debt Held by the Public	51.6	51.5	51.1	51.2	51.4	51.7	52.2

appropriations were increased for inflation; unspecified reductions represent savings below those amounts required to satisfy the discretionary caps.

b. Less than 0.05 percent of GDP.

taxes, and other taxes such as excise taxes, estate and gift taxes, customs duties, and profits returned by the Federal Reserve System--remain constant or fall slightly in relation to GDP.

The Outlook for Spending

The Budget Enforcement Act of 1990 (BEA) formalized the use of several categories that CBO had long used to describe federal spending. Discretionary spending is funded anew each year through the appropriation process. Such spending encompasses nearly the entire budgets for defense and international affairs and a wide variety of domestic programs--space and science, environmental protection, transportation, many education and social service programs, veterans' medical care, and the operation of the Internal Revenue Service and the court system, to name a few.

Since fiscal year 1991, discretionary spending has been constrained by dollar caps. The BEA set caps for 1991 through 1995, and OBRA-93 extended their applicability through 1998. The caps will essentially freeze such spending at today's levels for four more years. Barring future emergencies, outlays will be held to the mid-$540 billion range, and budget authority (the authority to commit funds, the basic currency of the appropriation process) will be constrained accordingly. Within these limits, policymakers must make trade-offs among competing needs--defense, international, and domestic. Because the caps essentially hold discretionary spending flat even as the economy grows, such outlays shrink steadily in relation to the economy: from 8.2 percent of GDP today--already far below the levels of 10 percent to 12 percent that were typical of the 1960-1989 period--they drift down to 6.6 percent in 1999.

All other categories of spending are controlled indirectly by the Congress. Mandatory spending is the single biggest category of outlays, approaching $800 billion this year. It climbs steadily, outpacing the growth of GDP, in CBO's projections. By 1999, it amounts to 12.9 percent of GDP, up a percentage point from today's levels. The familiar

benefit programs run by the government--led by Social Security, Medicare, and Medicaid, a joint federal/state program--dominate this huge category of spending (see Table 2-4). Lawmakers control such spending indirectly, not by voting annual dollar amounts but by setting standards for eligibility, benefit formulas, and so forth. The big health care entitlements essentially explain why mandatory spending, and eventually the deficit, are projected to grow in relation to GDP (see Box 2-1).

Deposit insurance outlays in CBO's newest projections are subdued in comparison with the wildly fluctuating levels of recent years. Deposit insurance spending spiked to $58 billion in 1990 and $66 billion in 1991, then registered negative outlays (that is, collections in excess of spending) of $28 billion in 1993. CBO expects that net outlays will continue to be negative, but in shrinking amounts after 1995, as proceeds from liquidations .gin to dry up and as the government cuts the __.· .sment that institutions must pay to the Bank Insurance Fund on insured deposits.

Net interest lies outside policymakers' close control; they influence such costs indirectly by making decisions that affect the size of the debt, but they do not directly control the market interest rates that the Treasury must pay. Remarkably, net interest outlays in 1994 will be about $200 billion for the fourth year in a row, even as the debt has grown by $1 trillion over the same period. This welcome stability--the result of refinancing large amounts of maturing debt at lower rates--will soon end. Net interest is set to climb to $226 billion next year and to $277 billion in 1999, given CBO's outlook for interest rates and continued federal borrowing.

The last category, offsetting receipts, is composed of various receipts and collections that are recorded as negative outlays rather than as revenues. These receipts come either from the public (such as voluntary Medicare premiums or licenses to use portions of the electromagnetic spectrum) or from within the government (such as agencies' contributions to retirement funds). They amount to a steady 1 percent of GDP in CBO's projections.

Table 2-4.
CBO Baseline Projections for Mandatory Spending, Excluding Deposit Insurance
(By fiscal year, in billions of dollars)

	Actual 1993	1994	1995	1996	1997	1998	1999
	Means-Tested Programs						
Medicaid	76	84	96	108	121	135	151
Food Stamps[a]	25	26	26	27	28	29	31
Supplemental Security Income	21	25	24	24	29	32	35
Family Support	16	17	18	18	19	20	20
Veterans' Pensions	4	3	3	3	3	3	3
Child Nutrition	7	7	7	8	8	9	9
Earned Income Tax Credit	9	11	17	20	22	23	25
Student Loans	2	3	2	2	2	2	2
Other	3	3	3	4	4	4	5
Total, Means-Tested Programs	162	179	198	214	236	258	281
	Non-Means-Tested Programs						
Social Security	302	317	333	350	368	388	408
Medicare	143	158	177	195	216	238	263
Subtotal	445	475	510	545	584	625	671
Other Retirement and Disability							
Federal civilian[b]	39	40	43	44	46	49	51
Military	26	26	27	29	30	32	35
Other	4	5	5	5	5	5	5
Subtotal	69	72	75	78	82	86	91
Unemployment Compensation	35	27	22	24	25	27	28
Other Programs							
Veterans' benefits[c]	17	18	17	16	18	18	19
Farm price supports	16	11	9	8	9	9	9
Social services	5	6	6	6	6	6	5
Credit reform liquidating accounts	2	-5	-1	-3	-4	-5	-6
Other	11	12	11	10	10	10	8
Subtotal	51	41	41	37	38	37	36
Total, Non-Means-Tested Programs	600	615	649	684	728	775	826
	Total						
All Mandatory Spending, Excluding Deposit Insurance	762	794	847	898	965	1,032	1,107

SOURCE: Congressional Budget Office.

NOTE: Spending for major benefit programs shown in this table includes benefits only. Outlays for administrative costs of most benefit programs are classified as domestic discretionary spending; Medicare premium collections are classified as offsetting receipts.

a. Includes nutrition assistance to Puerto Rico.

b. Includes Civil Service, Foreign Service, Coast Guard, and other retirement programs, and annuitants' health benefits.

c. Includes veterans' compensation, readjustment benefits, life insurance, and housing programs.

Table 2-5.
Comparison of CBO Baseline with OMB Midsession Review (By fiscal year, in billions of dollars)

	1994	1995	1996	1997	1998	1999
OMB Midsession Review Deficit[a]	220	167	179	190	192	207
Differences						
Outlays						
Discretionary spending	-7	1	5	2	-1	12
Deposit insurance	-2	1	-4	-2	-3	-1
Mandatory spending and offsetting receipts	-2	1	b	3	6	6
Net interest	-2	2	3	-2	-5	-5
Total	-13	4	4	1	-3	11
Revenues	-6	-9	-7	2	7	12
Deficit	-18	-5	-3	3	5	24
CBO Baseline Deficit	202	162	176	193	197	231

SOURCES: Congressional Budget Office; Office of Management and Budget.

NOTE: Additional revenues are shown with a negative sign because they reduce the deficit.

a. Excluding the effects of the President's proposal for health care reform.

b. Less than $500 million.

A Comparison with the Administration's Projections

On July 14, the Administration's Office of Management and Budget (OMB) issued its midsession review of the budget. Disagreements between the OMB and CBO projections are muted (see Table 2-5). The only pronounced differences are in the first and last years of the projections, 1994 and 1999.

In 1994, the Administration arguably did not take full account of the sluggish spending that is discernible from the *Monthly Treasury Statement* and other data. CBO projects that the 1994 deficit will be $202 billion, versus the Administration's projection of $220 billion, two-thirds of the difference is attributable to CBO's lower projection of spending and just one-third to greater revenues.

The two agencies' projections for the 1995-1999 period are not strictly comparable. CBO's baseline estimates represent the implications of continuing current taxing and spending policies, whereas OMB's projections incorporate the effects of a few minor proposals that would alter current policies. The total effects of those proposals, however, are quite tiny, and most are concentrated in the discretionary spending area.[2] In its baseline projections, CBO assumes that discretionary spending is equal to the caps in 1995 through 1998; the Administration, in contrast, proposes spending that is slightly below the caps in 1996 and 1997. Furthermore, in 1999,

_____

2. See Congressional Budget Office, *An Analysis of the President's Budgetary Proposals for Fiscal Year 1995* (April 1994), Table 1. One proposal that was identified as a departure from current policy in that report--the effects of cutting federal employment on retirement contributions--is now substantially incorporated in the CBO baseline because of the enactment of limits on federal civilian employment in the *Federal Workforce Restructuring Act of 1994.*

when the caps have expired, CBO returns to its traditional baseline practice of estimating discretionary spending at the previous year's level with an adjustment for inflation. OMB's projections, in contrast, incorporate hardly any rise in discretionary spending in 1999, generating a $12 billion difference in that final year.

Other differences between the two agencies' projections are similarly undramatic. By 1999, CBO expects $6 billion more in mandatory spending than does OMB, chiefly in Medicaid, unemployment insurance, and the earned income tax credit. As discussed in Chapter 1, CBO expects slightly higher rates on short-term Treasury bills than does the Administration, especially through 1995, but it also expects slightly lower rates on long-term Treasury notes and bonds for the entire five years ahead. Differences in the two agencies' projections of net interest spending roughly track these contrasting assumptions about interest rates. Finally, CBO assumes a larger nominal GDP than does OMB through 1995 but chooses a more conservative assumption about the economy's long-run potential for growth thereafter. Largely as a consequence, CBO's revenues are smaller than the Administration's in the last few years of the projection.

The Federal Sector of the National Income and Product Accounts

The projections summarized so far in this chapter draw on the usual labels--revenues by source, outlays by category--that are familiar to policymakers. Economists, though, often use another approach for measuring the government's activities. The national income and product accounts (NIPAs) divide the government's spending and receipts into categories that are conventionally used to analyze domestic production and income, helping economists to trace the relationship between the government and other sectors of the economy.

Just a few major differences distinguish the NIPA versions of federal receipts and expenditures from their budget analogues. Netting and grossing

adjustments move some collections--most of which are labeled offsetting receipts in the budget--from the spending to the receipts side of the NIPAs (see Table 2-6). Most are recorded in the budget as negative outlays because they are not deemed to result from the government's taxing power. Shifting them to the receipts side of the NIPAs satisfies the desire of the accounts' users for a fuller picture of government receipts regardless of source and clearly does not affect the total deficit. Such adjustments total $83 billion in 1994 and grow steadily thereafter.

Excluding lending and financial transactions, in contrast, does drive a wedge between the budget and NIPA deficits. Macroeconomic analysis typically disregards transactions that merely reflect the transfer of existing assets and liabilities and therefore do not contribute to current income or production. Prominent among such adjustments are those for deposit insurance outlays and direct loans made by (or repaid to) the government. Other, relatively minor factors that cause NIPA and budget totals to diverge are geographic adjustments (the exclusion of Puerto Rico, the Virgin Islands, and a few other areas from the domestic economic statistics) and timing adjustments (such as the recording of corporate taxes when accrued rather than paid, adjustments for irregular numbers of benefit checks or paychecks because of calendar quirks, and so forth).

Tracing the relationship between the NIPA and the budget data is complicated by the fact that the Bureau of Economic Analysis regularly revises the NIPA data--sometimes by large amounts--but does not routinely publish a full-fledged bridge to the budget totals. (Those totals, in contrast, seldom receive more than negligible revisions.) Nevertheless, when the dust finally settles, the NIPA deficit generally resembles the budget deficit excluding deposit insurance--echoing CBO's frequent emphasis on this measure in its regular budget reports.

The NIPA federal sector generally portrays receipts according to their sources and expenditures according to their purpose and destination (see Table 2-7). Receipts are split into four large categories--personal tax and nontax receipts, corporate profits tax accruals, indirect business tax and nontax accruals, and social insurance contributions--whose labels summarize the nature of the collection and

Table 2-6.
Relationship of the Budget to the Federal Sector of the
National Income and Product Accounts (By fiscal year, in billions of dollars)

	Actual 1993[a]	1994	1995	1996	1997	1998	1999
Receipts							
Revenues (Budget basis)[b]	1,153	1,265	1,363	1,433	1,492	1,562	1,632
Differences							
Netting and grossing							
Government contributions							
for employee retirement	55	56	58	61	64	67	72
Medicare premiums	15	17	20	20	22	26	27
Deposit insurance premiums	6	7	7	5	3	3	3
Other	4	3	7	2	c	c	c
Geographic exclusions	-2	-3	-3	-3	-3	-3	-3
Other	12	5	-2	3	2	c	c
Total	89	86	86	87	89	92	98
Receipts (NIPA basis)	1,242	1,351	1,449	1,520	1,580	1,654	1,731
Expenditures							
Outlays (Budget basis)[b]	1,408	1,467	1,525	1,609	1,684	1,758	1,863
Differences							
Netting and grossing							
Government contributions							
for employee retirement	55	56	58	61	64	67	72
Medicare premiums	15	17	20	20	22	26	27
Deposit insurance premiums	6	7	7	5	3	3	3
Other	4	3	7	2	c	c	c
Lending and financial transactions							
Deposit insurance	23	-1	11	7	2	1	c
Other	-6	1	-1	1	2	2	2
Defense timing adjustment	2	1	1	1	1	1	1
Geographic exclusions	-8	-9	-9	-10	-10	-11	-11
Other	-3	-16	-4	-2	-7	-7	-7
Total	88	59	89	83	76	83	86
Expenditures (NIPA basis)	1,497	1,526	1,614	1,692	1,761	1,841	1,949
Deficit							
Deficit (Budget basis)[b]	255	202	162	176	193	197	231
Differences							
Lending and financial transactions	17	c	10	8	3	4	2
Defense timing adjustment	2	1	1	1	1	1	1
Geographic exclusions	-5	-6	-7	-7	-7	-8	-8
Other	-14	-22	-1	-6	-9	-7	-7
Total	-1	-27	3	-4	12	-10	-13
Deficit (NIPA basis)	254	174	165	172	181	187	218

SOURCE: Congressional Budget Office.
a. Estimate based on data from the Department of Commerce, Bureau of Economic Analysis, July 1994.
b. Includes Social Security and the Postal Service.
c. Less than $500 million.

Table 2-7.
Projections of Baseline Receipts and Expenditures Measured by the National Income and Product Accounts (By fiscal year, in billions of dollars)

	Actual 1993[a]	1994	1995	1996	1997	1998	1999
Receipts							
Personal Tax and Nontax Receipts	514	558	611	650	680	717	755
Corporate Profits Tax Accruals	134	157	161	164	169	174	180
Indirect Business Tax and Nontax Accruals	83	91	97	97	93	96	98
Contributions for Social Insurance	511	545	580	610	638	667	698
Total	1,242	1,351	1,449	1,520	1,580	1,654	1,731
Expenditures							
Purchases of Goods and Services							
Defense	307	292	292	297	304	313	324
Nondefense	140	145	155	161	167	173	179
Subtotal	447	437	447	458	471	486	502
Transfer Payments							
Domestic	634	661	703	749	797	849	908
Foreign	16	14	15	15	16	16	16
Subtotal	650	675	718	764	813	865	924
Grants-in-Aid to State and Local Governments	181	196	220	237	254	273	292
Net Interest	184	185	207	224	230	240	253
Subsidies Less Current Surplus of Government Enterprises	35	33	31	32	34	34	34
Required Reductions in Discretionary Spending	n.a.	n.a.	-11	-23	-41	-58	-57
Total	1,497	1,526	1,614	1,692	1,761	1,841	1,949
Deficit							
Deficit	254	174	165	172	181	187	218

SOURCE: Congressional Budget Office.

NOTE: n.a. = not applicable.

a. Estimate based on data from the Department of Commerce, Bureau of Economic Analysis, July 1994.

the identity of the payer. The term "nontax" is a tip-off that NIPA receipts include some charges, such as fees and premiums, that are not generally treated as revenues in the budget.

Federal spending can take the form of defense and nondefense purchases (which enter directly into GDP), transfers (most of which find their way into personal income and from there into consumption or saving), grants to state and local governments (which may end up as state and local purchases or transfers), net interest, and the subsidies less the current surplus of government enterprises such as the Postal Service and public housing authorities. A final category, required reductions in discretionary spending, appears in Table 2-7 as a consequence of the discretionary spending caps that are mandated by law. These caps will limit future spending for programs funded through the appropriation process. Though no one can predict how particular programs will fare, the deepest effects of the required reductions will almost certainly be felt in the NIPA categories of defense and nondefense purchases and grants.

Appendixes

Evaluating CBO's Record of Economic Forecasts

Since issuing its first forecast in 1976, the Congressional Budget Office (CBO) has compiled a record for accurate economic predictions that compares favorably with the track records of five Administrations, as well as with consensus forecasts of a sizable sample of private-sector economic forecasters. Although the margin is slight, CBO's forecasts have generally been closer than the Administration's to the actual values of several economic indicators that are important for projecting the budget. Moreover, during the 11 years for which comparisons are possible, CBO's forecasts have been about as accurate as the average of the 50 or so forecasts that make up the *Blue Chip* consensus survey. Comparing CBO's forecasts with that survey suggests that when CBO's economic predictions missed the mark by a wide enough margin to contribute to sizable misestimates of the deficit, those errors probably reflected limitations that confronted all forecasters.

These conclusions echo the findings of previous studies published by the Congressional Budget Office and other government and academic reviewers. They emerge from an evaluation of the accuracy of short-term forecasts for four economic indicators: growth in real output, inflation in the consumer price index (CPI), interest rates on three-month Treasury bills in both nominal and inflation-adjusted (real) terms, and interest rates on 10-year Treasury notes and Aaa corporate bonds. In carrying out the evaluation, CBO compiled two-year averages of its forecasts for the four indicators and compared them with historical values, as well as

with the corresponding forecasts of the Administration and the *Blue Chip* consensus.

Both CBO and the Administration have tended to err toward optimism in their forecasts for a two-year horizon. In other words, the average forecast error for real growth was an overestimate, and the average error for inflation was an underestimate. The Administration has also been more optimistic than CBO in forecasting interest rates, with the average error being an underestimate. Overall, the average errors in the Administration's two-year forecasts were slightly larger than in CBO's. Moreover, an examination of longer-term projections of growth in real output reaches similar conclusions: CBO's errors in projecting four-year average growth in real output were optimistic on average but smaller than the Administration's. For the longer-term projections, both CBO and the Administration recorded larger errors on average than was the case for their short-term forecasts. Finally, CBO's forecasts appear to be about as accurate as the *Blue Chip* consensus over the period for which comparable *Blue Chip* forecasts are available (1982-1992).

The differences among the three forecasts, however, are not large enough to be statistically significant. The small number of forecasts available for the analysis makes it difficult to distinguish meaningful differences in forecast performance from differences that might arise randomly. Thus, the statistics presented here are not reliable indicators of the future performance of any of the forecasters.

Sources of Data for the Evaluation

Evaluating CBO's forecasting record requires compiling the basic historical and forecast data for growth in real output, CPI inflation, and interest rates. Although each of these series has an important influence on budget projections, an accurate forecast of the two-year average growth in real output is the most critical economic factor in accurately estimating the deficit for the upcoming budget year. Two-year average forecasts published in early 1993 and 1994 could not be included in the evaluation because historical values for 1994 and 1995 are, of course, not yet available.[1] The data were therefore compiled using forecasts published early in the years 1976 through 1992.

Selection of Historical Data

Which historical data to use for the evaluation was dictated by the availability of actual data and the nature of the individual forecasts examined. Although CBO, the Administration, and Blue Chip all published the same measure for real output growth, selecting a historical series was difficult because of periodic benchmark revisions to the actual data.[2] By comparison, not all of the forecasters published the same measures for CPI inflation and interest rates, but the selection of historical data for these series was clear-cut.

Real Output Growth. Historical two-year averages of growth in real output were developed from calendar year averages of the quarterly benchmark-years-weighted indices of real gross national product (GNP) and real gross domestic product (GDP) published by the Bureau of Economic Analysis (BEA).

The fact that several real GNP and GDP series were discontinued because of periodic benchmark revisions meant that they were unsuitable historical series.

For example, during the 1976-1985 period, the three forecasters published estimates for a measure of growth in real GNP that was based on 1972 prices, the measure published by BEA at the time. In late 1985, however, BEA discontinued this 1972-dollar series and began to publish GNP on a 1982-dollar basis. As a result, an official series of values for GNP growth in 1972 dollars is not available for years after 1984; thus, actual two-year average growth rates are not available to compare with the forecasts made in early 1984 and 1985. From 1986 to 1991, forecasters published estimates of growth in real GNP based on 1982 prices. BEA revised the benchmark again in the second half of 1991; it discontinued the 1982-dollar GNP and began to publish GNP on a 1987-dollar basis.[3] Consequently, the historical annual series for 1982-dollar GNP is available only through 1990, and actual two-year average growth rates are not available for the forecasts made in early 1990 and 1991.

By periodically updating the series to reflect more recent prices, BEA's benchmark revisions yield a measure of real output that is more relevant for analyzing contemporary movements in real growth. But the process makes it difficult to evaluate forecasts of real growth produced over a period of years for series that are subsequently discontinued. Recently, however, the difficulties presented by periodic revisions of the data have been diminished by the availability of new benchmark-years-weighted indices of real GNP and GDP. In 1992, BEA began regularly to publish and update these alternative series for real growth.[4]

---

1. The Clinton Administration adopted CBO's economic assumptions as the basis for its budget in early 1993. As a result, once the 1994 data are available, the errors for the early 1993 forecast will be virtually the same for CBO and the Administration.

2. Before 1992, CBO, the Office of Management and Budget, and Blue Chip used gross national product to measure output. However, beginning in early 1992, all three forecasters began to publish forecasts and projections of gross domestic product instead.

3. With the 1992 benchmark revision, GDP replaced GNP as the central measure of national output.

4. For details of the conceptual basis and empirical characteristics of this new series, see A.H. Young, "Alternative Measures of Change in Real Output and Prices," Survey of Current Business (April 1992), pp. 32-48; J.E. Triplett, "Economic Theory and BEA's Alternative Quantity and Price Indexes," Survey of Current Business (April 1992), pp. 49-52; and A.H. Young, "Alternative Measures of Change in Real Output and Prices: Quarterly Estimates for 1959-92," Survey of Current Business (March 1993), pp. 31-41.

CPI Inflation. Two-year averages of inflation in the consumer price index were calculated from calendar year averages of monthly data published by the Bureau of Labor Statistics. Before 1978, the bureau published only one consumer price index series, known today as the CPI-W (the price index for urban wage earners and clerical workers). In January 1978, however, it began to publish a second, broader consumer price index series, the CPI-U (the price index for all urban consumers). CBO's comparison of forecasts used both series.

Until 1992, the Administration published its forecasts for the CPI-W, the measure used to index most of the federal government's expenditures for entitlement programs. By contrast, for all but four of its forecasts since 1979 (1986 through 1989), CBO based its inflation forecast on the CPI-U, a more widely cited measure of inflation and the one now used to index federal income tax brackets. The *Blue Chip* consensus has always published its forecast of the CPI-U. Although both the CPI-U and CPI-W may be forecast with the same relative ease, and annual fluctuations in the two series are virtually indistinguishable, they do differ in some years; for that reason CBO used historical data for both series to evaluate the alternative forecast records.

Interest Rates. Two-year averages of nominal short- and long-term interest rates were developed from calendar year averages of monthly data published by the Board of Governors of the Federal Reserve System.

The forecasts of short-term interest rates were compared using historical values for two measures of the interest rate on three-month Treasury bills: the new-issue rate and the secondary-market rate. The new-issue rate forecast by the Administration corresponds to the price of three-month bills auctioned by the Treasury Department--that is, it reflects the interest actually paid on that debt. The secondary-market rate forecast by CBO, by contrast, corresponds to the price of the three-month bills traded outside the Treasury auctions. Because these transactions occur continually in markets that involve many more traders than do Treasury auctions, the secondary-market rate provides an updated evaluation by the wider financial community of the short-term federal debt. *Blue Chip* has alternated

between these two rates: publishing the new-issue rate from 1982 to 1985, switching to the secondary-market rate for the 1986-1991 period, and then returning to the new-issue rate in 1992. Clearly, there is no reason to expect the two rates to differ persistently; indeed, the differences between their calendar year averages are minuscule.

The various forecasts of long-term interest rates were likewise compared using historical values for two measures of long-term rates: the 10-year Treasury note rate and Moody's Aaa corporate bond rate. A comparison of forecasts is only possible beginning in 1984 because not all of the forecasters published projections of long-term interest rates before that year. For forecasts made in early 1984 and 1985, CBO projected the Aaa corporate bond rate. Beginning with its early 1986 forecast, however, CBO switched to the 10-year Treasury note rate. The Administration has always published its projection for the 10-year Treasury note rate, but *Blue Chip* has published the Aaa corporate bond rate.

Separate historical values for real short-term interest rates were calculated using the nominal short-term interest rate and inflation rate appropriate for each forecaster. In each case, the two-year average nominal interest rate was discounted by the two-year average rate of inflation. The resulting real short-term interest rates were very similar. Since there is no agreed-upon method for calculating real long-term interest rates, they were not included in the evaluation.

Sources of Forecast Data

The evaluation used calendar year forecasts and projections, which CBO has published early each year since 1976, timed to coincide with the publication of the Administration's budget proposals. The Administration's forecasts were taken from the Administration's budget in all but one case: the forecast made in early 1981 came from the Reagan Administration's revisions to President Carter's last budget. The corresponding CBO forecast was taken from a projection published in its analysis of the Reagan budget proposals. That forecast did not

include the economic effects of the new Administration's fiscal policy proposals.

The average forecasts of the *Blue Chip* consensus survey were taken from those published in the same month as CBO's forecasts. Because the *Blue Chip* consensus did not begin publishing its two-year forecasts until the middle of 1981, the first consensus forecast available for use in this comparison was published in early 1982.

Measuring Bias and Accuracy

Following earlier studies of economic forecasts, this evaluation of CBO's forecasts focused on two aspects of forecast performance: statistical bias and accuracy.

Bias

The statistical bias of a forecast is the extent to which the forecast can be expected to differ from what actually occurs. CBO's evaluation used the *mean error* to measure statistical bias. That statistic--the arithmetic average of all the forecast errors--is the simplest and most widely used measure of forecast bias. Because the mean error is a simple average, however, underestimates and overestimates offset each other in calculating it. As a result, the mean error imperfectly measures the quality of a forecast--a small mean error would result either if all the errors were small or if all the errors were large but the overestimates and underestimates happened to balance out.

Accuracy

The accuracy of a forecast is the degree to which forecast values are narrowly dispersed around actual outcomes. Measures of accuracy more clearly reflect the usual meaning of forecast performance than does the mean error. This evaluation used two measures of accuracy. The *mean absolute error*--the average of the forecast errors without regard to arithmetic sign--indicates the average distance between forecasts and actual values without regard to

whether individual forecasts are overestimates or underestimates. The *root mean square error*--calculated by first squaring all the errors, then taking the square root of the arithmetic average of the squared errors--also shows the size of the error without regard to sign, but it gives greater weight to larger errors.

Measurement Issues

These three statistics do not exhaust the available supply of measures of forecast performance. For example, to test for statistical bias in CBO's predictions, previous studies have used measures that are slightly more elaborate than the mean error. Those studies have generally concluded, as does this evaluation, that CBO's short-term economic forecasts do not contain a statistically significant bias.[5]

In addition, a number of methods have been developed to evaluate a forecast's efficiency. Efficiency indicates the extent to which a particular forecast could have been improved by using additional information that was at the forecaster's disposal when the forecast was made.[6] To the extent that the *Blue Chip* consensus forecasts repr···ent a wide variety of economic forecasters--reflec..ing a broader blend of sources and methods than can be

---

5. Another approach to testing a forecast for bias is based on linear regression analysis of actual and forecast values. For details of that method, see J. Mincer and V. Zarnowitz, "The Evaluation of Economic Forecasts," in J. Mincer, ed., *Economic Forecasts and Expectations* (New York: National Bureau of Economic Research, 1969). That approach is not used here because of the small sample size. However, previous studies that have used it to evaluate the short-term forecasts of CBO and the Administration have not been able to reject the hypothesis that those forecasts are unbiased. See, for example, M.T. Belongia, "Are Economic Forecasts by Government Agencies Biased? Accurate?" *Review*, Federal Reserve Bank of St. Louis, vol. 70, no. 6 (November/December 1988), pp. 15-23.

6. For studies that have examined the relative efficiency of CBO's forecasts, see Belongia, "Are Economic Forecasts by Government Agencies Biased?"; and S.M. Miller, "Forecasting Federal Budget Deficits: How Reliable Are U.S. Congressional Budget Office Projections?" *Applied Economics*, vol. 23 (December 1991), pp. 1789-1799. Although both of the studies identify series that might have been used to make CBO's forecasts more accurate, they rely on statistics that assume a larger sample than is available. Moreover, although statistical tests can identify sources of inefficiency in a forecast after the fact, they generally do not indicate how such information can be used to improve forecasts when they are made.

expected in any single forecaster--their use in this evaluation can be interpreted as a proxy for an efficient forecast. The fact that CBO's forecasts are about as accurate as *Blue Chip*'s is a rough indication of forecast efficiency.

More elaborate measures, however, are not necessarily reliable indicators when the sample of observations is small, such as the 17 observations that make up the sample of CBO's two-year forecasts. Small samples present three main types of problems for evaluating forecasts, including forecasts based on the simple measures presented here. First, small samples reduce the reliability of statistical tests that are based on the assumption that the underlying population of forecast errors follows a normal distribution. The more elaborate tests of forecast performance all make such an assumption about the hypothetical ideal forecast with which the actual forecasts are compared. Second, in small samples, individual forecast errors have a relatively large weight in the calculation of summary measures. The mean error, for example, can fluctuate in arithmetic sign when a single observation is added to a small sample. Third, the small sample means that CBO's forecast history cannot be used in a statistically reliable way to indicate either the direction or the size of future forecasting errors.

Apart from the general caution that should attend statistical conclusions based on small samples, there are several other reasons to view this evaluation of CBO's forecasts with particular caution. First, the procedures and purposes of CBO's and the Administration's forecasts have changed over the past 18 years and may change again in the future. For example, in the late 1970s, CBO characterized its long-term projections as a goal for the economy, whereas it now considers its projections to be what will prevail on average if the economy continues to reflect historical trends. Second, an institution's forecasting track record may not foretell its future abilities because of changes in personnel or methods. Finally, forecast errors increase when the economy is more volatile. All three forecasters made exceptionally large errors when forecasting for periods that included turning points in the business cycle.

CBO's Forecasting Record

This analysis evaluated the Congressional Budget Office's forecasts over two-year and four-year periods. The period of most interest for forecasters of the budget is two years. Because the Administration's and CBO's winter budget publications focus on the budget projection for the fiscal year beginning in the following October, an economic forecast that is accurate not only for the months leading up to the budget year but also for the budget year itself will provide the basis for a more accurate forecast of the deficit. A four-year horizon is used to examine the accuracy of longer-term projections of growth in real GNP.

Short-Term Forecasts

Historically, CBO's two-year forecasts are slightly more accurate than the Administration's and suffer from slightly less statistical bias. In most cases, however, the differences are slim. Furthermore, CBO's forecasts are about as accurate as *Blue Chip*'s average forecasts.

An accurate forecast of two-year growth in real output is the most important factor in minimizing errors in forecasting the deficit for the budget year. Accurate forecasts of nominal output, inflation, and nominal interest rates are less important for forecasting deficits now than they were in the late 1970s and early 1980s. The reason is that, given current law and the level of the national debt, inflation increases both revenues and outlays by similar amounts. Revenues increase with inflation because taxes are levied on nominal incomes. Outlays increase because various entitlement programs are indexed to inflation and because nominal interest rates tend to increase with inflation, which in turn increases the cost of servicing the federal debt.[7]

---

7.   Rules of thumb for estimating the effect on the deficit of changes in various macroeconomic variables are given in Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1994-1998* (January 1993), pp. 109-113.

Real Output Growth. For the two-year forecasts made between 1976 and 1992, CBO had a slightly better record than the Administration in forecasting real output growth (see Table A-1). On average, both CBO and the Administration tended to overestimate growth of real output. For the 17 forecasts made during the 1976-1992 period, the average errors were 0.4 percentage points for CBO and 0.5 percentage points for the Administration. The root mean square errors for this period were 1.0 percentage point for CBO and 1.3 percentage points for the Administration. CBO was closer to the true value in nine of the 17 periods, the Administration was closer in five periods, and the two forecasters had identical errors in three periods. In addition, CBO's forecasts of two-year growth in real output made in the 1982-1992 period were, on average, about as accurate as the *Blue Chip* consensus.

Forecast errors tend to be larger when the economy is more unstable. This tendency can be clearly seen in the forecasts of real GNP growth by comparing the large errors for 1979 through 1983--when the economy went through its most turbulent recessionary period of the postwar era--with the smaller errors recorded for later years. Similarly, the recent business cycle accounts for the large errors in the forecasts made in 1989 through 1991; during that period, CBO's errors were only slightly larger than those of the *Blue Chip* consensus.

CPI Inflation. The records for forecasting the average annual growth in the consumer price index over the two-year horizon were very similar (see Table A-2). Both CBO and the Administration underestimated future inflation in their forecasts for 1977 through 1980, and both tended to overestimate it in their forecasts for 1981 through 1986. The average measures of bias and accuracy were virtually the same for CBO and the Administration. CBO was closer to the true value in six of the 17 periods, the Administration was closer in eight periods, and the two forecasters had identical errors in three periods. For the 1982-1992 forecasts, CBO's inflation predictions appeared to be about as accurate as those of both the Administration and *Blue Chip*.

Nominal Interest Rates. For the 1976-1992 forecasts, CBO's record was slightly more accurate than the Administration's for nominal short-term interest rates over the two-year horizon (see Table A-3). On average, the Administration tended to underestimate nominal short-term interest rates; CBO's mean error was zero over this period. CBO was closer to the true value in eight of the 17 periods, and the Administration was closer in nine periods. However, for the 1982-1992 period, the mean absolute error of CBO's forecasts was slightly above those of the Administration and *Blue Chip*.

For the 1984-1992 forecasts of long-term interest rates, CBO did significantly better than the Administration (see Table A-4). The Administration tended to underestimate rates, and its mean error was larger than CBO's. In addition, the Administration's forecasts had a larger mean absolute error and root mean square error. CBO was closer to the true value in six of the nine periods, and the Administration was closer in only three periods.

CBO's forecasts of long-term interest rates were about as accurate as those of the *Blue Chip* consensus. Both CBO and *Blue Chip* tended to overestimate long-term rates, each showing a mean error of 0.3 percentage points.

Real Short-Term Interest Rates. For the forecasts made in 1976 through 1992, CBO had a slight edge over the Administration in estimating short-term interest rates adjusted for inflation (see Table A-5). Again, the Administration was more likely than CBO to underestimate interest rates, and its mean error was greater. CBO and the Administration recorded similar mean absolute and root mean square errors. CBO's forecasts were closer to the actual value in 10 of the 17 periods; the Administration's were closer in seven. For forecasts made between 1982 and 1992, CBO's errors were generally similar in both direction and magnitude to those of the *Blue Chip* consensus.

Longer-Term Projections

In forecasting real GNP growth for the more distant future, measured here as four years ahead, the Administration's errors were larger than CBO's. Although this comparative advantage for CBO does not directly affect the estimates of the deficit for the

budget year, accuracy in the longer term is obviously important for budgetary planning over several years. Neither the Administration nor CBO, however, considers its projections to be its best guess about the year-to-year course of the economy. The Administration's projections each year are based on the adoption of the President's budget as submitted, and in recent years CBO has considered its projections an indication of the average future performance of the economy if major historical trends continue. Neither institution attempts to anticipate cyclical fluctuations in the projection period.

CBO's projections of medium-term growth in real GNP for 1976 through 1990 were nearly always closer to actual growth than were the Administration's. The Administration's projections of the average annual rate of real GNP growth over four years showed an upward bias of 1.3 percentage

points, compared with an upward bias of 0.8 percentage points for CBO (see Table A-6). Those biases resulted largely from the inability of the projections made in early 1977 through 1980 to anticipate the recessions of 1980 and 1982. Through the subsequent years of expansion until the most recent recession, the upward bias was much smaller for the Administration's projections and smaller yet for CBO's.

The size of the root mean square errors for the entire period for both CBO and, to a lesser extent, the Administration also results largely from errors in projections made during the first five years. CBO had a definite edge in the projections made in January 1981 and 1982 and a lesser edge in later years. CBO's projections of four-year real GNP growth were more accurate than the Administration's for 14 of the 15 periods compared here.

Table A-2.
Comparison of CBO, Administration, and *Blue Chip* Forecasts of Two-Year Average
Inflation Rates in the Consumer Price Index (By calendar year, errors in percentage points)

	Actual		CBO		Administration		Blue Chip	
	CPI-U	CPI-W	Forecast	Error	Forecast	Error	Forecast	Error
1976-1977	6.1	6.1	7.1	1.0	6.1	0	a	a
1977-1978	7.0	7.0	4.9	-2.1	5.2	-1.8	a	a
1978-1979	9.4	9.5	5.8	-3.7	6.0	-3.5	a	a
1979-1980	12.4	12.5	8.1	-4.3	7.4	-5.0	a	a
1980-1981	11.9	11.9	10.1	-1.8	10.5	-1.4	a	a
1981-1982	8.2	8.1	10.4	2.1	9.7	1.6	a	a
1982-1983	4.6	4.5	7.2	2.6	6.6	2.1	7.2	2.6
1983-1984	3.8	3.3	4.7	1.0	4.7	1.5	4.9	1.1
1984-1985	3.9	3.5	4.9	1.0	4.5	1.0	5.2	1.3
1985-1986	2.7	2.5	4.1	1.4	4.2	1.7	4.3	1.6
1986-1987	2.8	2.6	3.8	1.2	3.8	1.2	3.8	1.0
1987-1988	3.9	3.8	3.9	0.1	3.3	-0.5	3.6	-0.2
1988-1989	4.4	4.4	4.7	0.3	4.2	-0.2	4.3	-0.1
1989-1990	5.1	5.0	4.9	-0.1	3.7	-1.3	4.7	-0.4
1990-1991	4.8	4.6	4.1	-0.7	3.9	-0.7	4.1	-0.7
1991-1992	3.6	3.5	4.2	0.6	4.6	1.1	4.4	0.8
1992-1993	3.0	2.9	3.4	0.5	3.1	0.2	3.5	0.5
Statistics for								
1976-1992								
Mean error	n.a.	n.a.	n.a.	-0.1	n.a.	-0.2	n.a.	n.a.
Mean absolute								
error	n.a.	n.a.	n.a.	1.4	n.a.	1.5	n.a.	n.a.
Root mean								
square error	n.a.	n.a.	n.a.	1.8	n.a.	1.9	n.a.	n.a.
Statistics for								
1982-1992								
Mean error	n.a.	n.a.	n.a.	0.7	n.a.	0.6	n.a.	0.7
Mean absolute								
error	n.a.	n.a.	n.a.	0.9	n.a.	1.0	n.a.	0.9
Root mean								
square error	n.a.	n.a.	n.a.	1.1	n.a.	1.2	n.a.	1.2

SOURCES: Congressional Budget Office; Office of Management and Budget; Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators*; Department of Labor, Bureau of Labor Statistics.

NOTES: Values are for the average annual growth of the consumer price index (CPI) over the two-year period. Before 1978 the Bureau of Labor Statistics published only one consumer price index series, known today as the CPI-W (the price index of wage earners and clerical workers). In January 1978, however, the bureau began to publish a second, broader consumer price index series, the CPI-U (the price index for all urban consumers). For most years since 1979, CBO forecast the CPI-U; from 1986 through 1989, CBO forecast the CPI-W. The Administration forecast the CPI-W until 1992, when it switched to the CPI-U. *Blue Chip* forecast the CPI-U for the entire period. The forecasts were issued in the first quarter of the initial year of the period or in December of the preceding year. Errors are forecast values minus actual values; thus, a positive error is an overestimate.

n.a. = not applicable.

a. Two-year forecasts for the *Blue Chip* consensus were not available until 1982.

Table A-3.
Comparison of CBO, Administration, and *Blue Chip* Forecasts of Two-Year Average Interest Rates on Three-Month Treasury Bills (By calendar year, errors in percentage points)

| | Actual | | CBO | | Administration | | Blue Chip | |
	New Issue	Secondary Market	Forecast	Error	Forecast	Error	Forecast	Error
1976-1977	5.1	5.1	6.2	1.1	5.5	0.4	a	a
1977-1978	6.2	6.2	6.4	0.2	4.4	-1.8	a	a
1978-1979	8.6	8.6	6.0	-2.6	6.1	-2.5	a	a
1979-1980	10.8	10.7	8.3	-2.4	8.2	-2.6	a	a
1980-1981	12.8	12.7	9.5	-3.2	9.7	-3.1	a	a
1981-1982	12.4	12.3	13.2	0.9	10.0	-2.4	a	a
1982-1983	9.7	9.6	12.6	3.0	11.1	1.4	11.3	1.6
1983-1984	9.1	9.1	7.1	-2.0	7.9	-1.1	7.9	-1.2
1984-1985	8.5	8.5	8.7	0.3	8.1	-0.4	9.1	0.5
1985-1986	6.7	6.7	8.5	1.8	8.0	1.3	8.5	1.8
1986-1987	5.9	5.9	6.7	0.9	6.9	1.0	7.1	1.2
1987-1988	6.2	6.2	5.6	-0.6	5.5	-0.7	5.7	-0.5
1988-1989	7.4	7.4	6.4	-0.9	5.2	-2.1	6.1	-1.2
1989-1990	7.8	7.8	7.5	-0.3	5.9	-1.9	7.5	-0.3
1990-1991	6.5	6.4	7.0	0.6	6.0	-0.4	7.1	0.7
1991-1992	4.4	4.4	6.8	2.4	6.2	1.8	6.4	2.0
1992-1993	3.2	3.2	4.7	1.5	4.5	1.3	4.6	1.4
Statistics for 1976-1992								
Mean error	n.a.	n.a.	n.a.	0	n.a.	-0.7	n.a.	n.a.
Mean absolute error	n.a.	n.a.	n.a.	1.5	n.a.	1.6	n.a.	n.a.
Root mean square error	n.a.	n.a.	n.a.	1.7	n.a.	1.7	n.a.	n.a.
Statistics for 1982-1992								
Mean error	n.a.	n.a.	n.a.	0.6	n.a.	0	n.a.	0.6
Mean absolute error	n.a.	n.a.	n.a.	1.3	n.a.	1.2	a.	1.1
Root mean square error	n.a.	n.a.	n.a.	1.6	n.a.	1.3	n.a.	1.3

SOURCES: Congressional Budget Office; Office of Management and Budget; Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators*; Federal Reserve Board.

NOTES: Values are for the geometric averages of the three-month Treasury bill rates for the two-year period. The actual values are published by the Federal Reserve Board as the rate on new issues, reported on a bank-discount basis, and the secondary-market rate. CBO forecast the secondary-market rate; the Administration forecast the new-issue rate. The *Blue Chip* alternated between the two rates, forecasting the new-issue rate from 1982 to 1985, the secondary-market rate from 1986 to 1991, and the new-issue rate again beginning in 1992. The forecasts were issued in the first quarter of the initial year of the period or in December of the preceding year. Errors are forecast values minus actual values; thus, a positive error is an overestimate.

n.a. = not applicable.

a. Two-year forecasts for the *Blue Chip* consensus were not available until 1982.

Table A-4.
Comparison of CBO, Administration, and *Blue Chip* Forecasts of Two-Year Average Long-Term Interest Rates (By calendar year, errors in percentage points)

	Actual		CBO		Administration		Blue Chip	
	10-Year Note	Corporate Aaa Bond	Forecast	Error	Forecast	Error	Forecast	Error
1984-1985	11.5	12.0	11.9	-0.1	9.7	-1.8	12.2	0.2
1985-1986	9.1	10.2	11.5	1.3	10.6	1.5	11.8	1.7
1986-1987	8.0	9.2	8.9	0.9	8.7	0.7	9.9	0.8
1987-1988	8.6	9.5	7.2	-1.4	6.6	-2.0	8.7	-0.8
1988-1989	8.7	9.5	9.4	0.7	7.7	-1.0	9.8	0.3
1989-1990	8.5	9.3	9.1	0.6	7.7	-0.8	9.5	0.3
1990-1991	8.2	9.0	7.7	-0.5	7.2	-1.0	8.7	-0.3
1991-1992	7.4	8.5	7.8	0.4	7.3	-0.1	8.7	0.3
1992-1993	6.4	7.7	7.1	0.7	6.9	0.5	8.4	0.7
Statistics for 1984-1992								
Mean error	n.a.	n.a.	n.a.	0.3	n.a.	-0.4	n.a.	0.3
Mean absolute error	n.a.	n.a.	n.a.	0.7	n.a.	1.0	n.a.	0.6
Root mean square error	n.a.	n.a.	n.a.	0.8	n.a.	1.2	n.a.	0.7

SOURCES: Congressional Budget Office; Office of Management and Budget; Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators*; Federal Reserve Board.

NOTES: Actual values are for the geometric averages of the 10-year Treasury note rates or Moody's corporate Aaa bond rates for the two-year period as reported by the Federal Reserve Board. CBO forecast the 10-year Treasury note rate in all years except 1984 and 1985. The Administration forecast the 10-year note rate, but *Blue Chip* forecast the corporate Aaa bond rate. Data are only available beginning in 1984 since not all of the forecasters published long-term rate projections before then. The forecasts were issued in the first quarter of the initial year of the period or in December of the preceding year. Errors are forecast values minus actual values; thus, a positive error is an overestimate.

n.a. = not applicable.

Table A-5.
Comparison of CBO, Administration, and *Blue Chip* Forecasts of Two-Year Average Interest Rates on Three-Month Treasury Bills Adjusted for Inflation (By calendar year, errors in percentage points)

| | Actual | | | | CBO | | Administration | | *Blue Chip* | |
| | New Issue | | Secondary Market | | | | | | | |
	CPI-U	CPI-W	CPI-U	CPI-W	Forecast	Error	Forecast	Error	Forecast	Error
1976-1977	-0.9	-0.9	-0.9	-0.9	-0.8	0.1	-0.6	0.3	a	a
1977-1978	-0.8	-0.7	-0.8	-0.7	1.5	2.2	-0.8	-0.1	a	a
1978-1979	-0.7	-0.8	-0.7	-0.8	0.2	1.0	0.1	0.9	a	a
1979-1980	-1.4	-1.5	-1.4	-1.5	0.2	1.7	0.7	2.2	a	a
1980-1981	0.8	0.9	0.7	0.8	-0.5	-1.2	-0.7	-1.6	a	a
1981-1982	3.8	4.0	3.7	3.9	2.6	-1.2	0.3	-3.7	a	a
1982-1983	4.8	4.9	4.7	4.9	5.0	0.3	4.2	-0.8	3.8	-1.0
1983-1984	5.1	5.7	5.1	5.6	2.2	-2.9	3.1	-2.6	2.9	-2.3
1984-1985	4.4	4.9	4.4	4.8	3.6	-0.8	3.4	-1.4	3.6	-0.8
1985-1986	3.9	4.1	3.9	4.1	4.2	0.3	3.6	-0.4	4.0	0.1
1986-1987	3.0	3.2	3.0	3.2	2.8	-0.4	3.0	-0.3	3.2	0.2
1987-1988	2.3	2.4	2.3	2.3	1.7	-0.6	2.1	-0.2	2.0	-0.3
1988-1989	2.8	2.9	2.8	2.9	1.7	-1.2	1.0	-1.9	1.8	-1.1
1989-1990	2.6	2.6	2.6	2.6	2.5	-0.2	2.1	-0.6	2.7	0.2
1990-1991	1.6	1.7	1.5	1.7	2.8	1.3	2.0	0.3	2.9	1.4
1991-1992	0.8	0.9	0.7	0.9	2.5	1.8	1.5	0.6	1.9	1.2
1992-1993	0.2	0.4	0.2	0.3	1.3	1.0	1.3	1.1	1.1	0.8
Statistics for 1976-1992										
Mean error	n.a.	n.a.	n.a.	n.a.	n.a.	0.1	n.a.	-0.5	n.a.	n.a.
Mean absolute error	n.a.	n.a.	n.a.	n.a.	n.a.	1.1	n.a.	1.1	n.a.	n.a.
Root mean square error	n.a.	n.a.	n.a.	n.a.	n.a.	1.3	n.a.	1.5	n.a.	n.a.
Statistics for 1982-1992										
Mean error	n.a.	n.a.	n.a.	n.a.	n.a.	-0.1	n.a.	-0.6	n.a.	-0.1
Mean absolute error	n.a.	n.a.	n.a.	n.a.	n.a.	1.0	n.a.	0.9	n.a.	0.8
Root mean square error	n.a.	n.a.	n.a.	n.a.	n.a.	1.2	n.a.	1.2	n.a.	1.0

SOURCES: Congressional Budget Office; Office of Management and Budget; Eggert Economic Enterprises, Inc., *Blue Chip Economic Indicators*; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

NOTES: Values are for the appropriate three-month Treasury bill rate discounted by the respective forecast for inflation as measured by the change in the consumer price index. The forecasts were issued in the first quarter of the initial year of the period or in December of the preceding year. Errors are forecast values minus actual values; thus, a positive error is an overestimate.

CPI-U = consumer price index for all urban consumers; CPI-W = consumer price index for wage earners and clerical workers; n.a. = not applicable.

a. Two-year forecasts for the *Blue Chip* consensus were not available until 1982.

Table A-6.
Comparison of CBO and Administration Forecasts of Four-Year Average Growth
Rates for Real Output (By calendar year, errors in percentage points)

	Actual						Administration	
	1972 Dollars	1982 Dollars	1987 Dollars	Benchmark-Years-Weighted Index	Forecast	Error	Forecast	Error
1976-1979	5.3	4.3	4.3	4.8	5.9	1.1	6.1	1.3
1977-1980	3.2	3.0	2.9	3.3	5.4	2.1	5.4	2.1
1978-1981	2.5	2.4	2.1	2.7	4.8	2.1	4.8	2.2
1979-1982	0.7	0.4	0.4	0.9	3.6	2.7	3.7	2.8
1980-1983	0.9	0.7	0.6	1.0	2.1	1.0	2.6	1.5
1981-1984	2.7	2.4	2.2	2.6	2.6	0	3.7	1.0
1982-1985	a	2.7	2.5	2.8	2.8	0.1	3.8	1.0
1983-1986	a	4.1	3.8	4.0	3.6	-0.3	3.3	-0.7
1984-1987	a	4.1	3.6	3.8	4.1	0.3	4.3	0.6
1985-1988	a	3.5	3.2	3.2	3.3	0.2	4.0	0.8
1986-1989	a	3.3	3.1	3.1	3.3	0.2	3.8	0.8
1987-1990	a	2.8	2.7	2.7	3.0	0.3	3.4	0.7
1988-1991	a	b	1.8	1.7	2.5	0.8	3.2	1.5
1989-1992	a	b	1.3	1.3	2.3	1.0	3.2	1.9
1990-1993	a	b	1.4	1.3	2.3	1.0	3.0	1.7
Statistics for 1976-1990								
Mean error	n.a.	n.a.	n.a.	n.a.	n.a.	0.8	n.a.	1.3
Mean absolute error	n.a.	n.a.	n.a.	n.a.	n.a.	0.9	n.a.	1.4
Root mean square error	n.a.	n.a.	n.a.	n.a.	n.a.	1.2	n.a.	1.5

SOURCES: Congressional Budget Office; Office of Management and Budget; Department of Commerce, Bureau of Economic Analysis.

NOTES: Values are for the four-year growth rates for real gross national product (GNP) last reported by the Bureau of Economic Analysis, not the first reported values. The 1987-dollar series reflects the bureau's revisions published in July 1994. Revised estimates of the benchmark-years-weighted index, however, were not available at the time of publication. Forecast values are for the average growth of real GNP over the four-year period. The forecasts were issued in the first quarter of the initial year of the period or in December of the preceding year. Errors are forecast values minus actual values; thus, a positive error is an overestimate. The benchmark-years-weighted index of actual GNP was used in calculating the errors.

n.a. = not applicable.

a.   Data for 1972-dollar GNP are available only through the third quarter of 1985.

b.   Data for 1982-dollar GNP are available only through the third quarter of 1991.

Reestimating the NAIRU

The Congressional Budget Office (CBO) has recently reestimated the nonaccelerating inflation rate of unemployment (NAIRU) and has concluded that it is about three-tenths of a percentage point higher than was previously thought (see Figure B-1). The NAIRU is a summary measure of capacity in the labor market that plays an important role in CBO's projections of inflation and growth of real gross domestic product (GDP).[1] Historically, the rate of inflation increases when the rate of unemployment falls below the NAIRU and decreases when the unemployment rate rises above the NAIRU. The upward revision implies, therefore, that inflationary pressures are likely to occur at a slightly higher rate of unemployment than they would under the old estimate. CBO's estimate of the NAIRU affects the projection for growth of real GDP because it is an important determinant (though not the sole determinant) of CBO's estimate of potential output.

CBO reestimated the NAIRU because of a growing consensus that the economy is approaching its productive capacity and could be in danger of overheating. The new estimate differs from the old for three reasons: first, it is calculated using a longer data sample; second, the data used for the calculation have been revised; and third, a new (and better) measure of inflation is used.

The upward revision to the NAIRU is not related to the revision to the unemployment portion of the Current Population Survey (CPS) made by the Bureau of Labor Statistics in January (see Box 1-1 in Chapter 1). For 1993 and earlier, CBO's estimated value of the NAIRU is based on the old method for the unemployment survey. Beginning in 1994, however, the NAIRU estimates should be adjusted upward by another one-quarter of one percentage point to account for the new survey methods. The estimate of the 1994 level of the NAIRU is 6 percent using the new survey, a rate that is comparable to the data on the unemployment rate now being released.

Figure B-1.
The Unemployment Rate, the Reestimated NAIRU, and the Old NAIRU
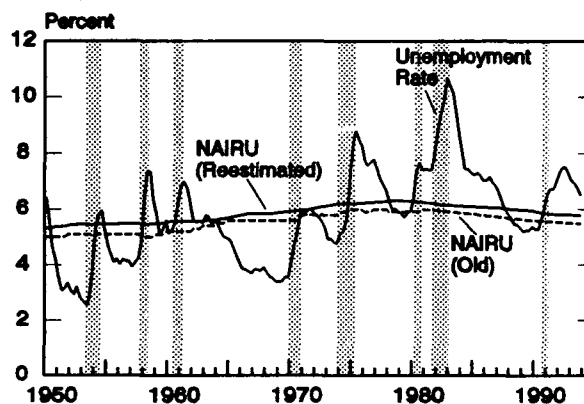
SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: Data for the unemployment rate and the nonaccelerating inflation rate of unemployment (NAIRU) are on the old basis, as reported before the January 1994 revision of the Current Population Survey. Values of the NAIRU are estimated by CBO.

1. For a discussion of the NAIRU, see Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1995-1999* (January 1994), p. 18. See also W.W. Lang, "Is There a Natural Rate of Unemployment?" *Business Review*, Federal Reserve Bank of Philadelphia (March/April 1990), pp. 13-22; or S.E. Weiner, "The Natural Rate of Unemployment: Concepts and Issues," *Economic Review*, Federal Reserve Bank of Kansas City (January 1986), pp. 11-24.

Procedure for Estimating the NAIRU

Computing the NAIRU involves the statistical estimation of equations, known as Phillips curves, that describe the primary influences on the short-term process of wage and price adjustment in the economy.[2] Phillips curves capture an important statistical regularity: that higher rates of inflation have historically been associated with lower rates of unemployment. When total demand in the economy presses against the limits of what the economy can supply, companies frequently raise the prices of their goods and services. They also typically hire more workers to meet the larger demand, thereby lowering the rate of unemployment and bidding up wages. When demand falls below the economy's capacity, the opposite happens: companies cut prices to move their goods while they reduce their payrolls to lower costs, thus raising unemployment and slowing the growth of wages.

The Phillips curve, in its simplest form, posits an inverse relationship between the rate of inflation and the rate of unemployment. Past research, however, has found that the basic Phillips curve relationship broke down during the 1970s, when the United States experienced high inflation and high unemployment at the same time. To cope with periods like the 1970s, when fluctuations in total supply dominated the economy, the simple theory must be augmented to include variables that capture the effects of supply shocks (such as sharp increases in the price of energy) and the process by which markets form expectations of future inflation. A Phillips curve equation that allows for shifts in total demand and supply can successfully explain the movements of inflation and can be solved for the desired estimate of the NAIRU.

For its Phillips curve, CBO estimates a regression in which inflation--measured as the percentage

change in the overall price level--is the dependent variable. The explanatory variables include lagged (that is, past) values of inflation (to represent expected inflation); lagged values of the unemployment rate of a reference group in the labor force (to model total demand); a variable measuring productivity growth; a variable to control for food and energy prices; and dummy variables to control for the imposition of wage and price controls during the early 1970s. CBO uses the unemployment rate of a reference group, married males, to measure the level of demand in the economy because the overall unemployment rate is affected by changes in the composition of the labor force. (For example, the overall unemployment rate could rise despite unchanged demand if there was an influx of youths, who traditionally have a high rate of unemployment, into the labor force.) The Phillips curve equation can be solved for the rate of unemployment that would keep the rate of inflation constant, which is the NAIRU for the reference group.

The NAIRUs for individual demographic groups in the labor force can be computed from the married-male NAIRU.[3] CBO estimates regressions that relate the unemployment rate for each demographic group to the unemployment rate for married males. The NAIRU for each demographic group is calculated by inserting the NAIRU for married males into each of these equations. The overall NAIRU is then computed as a weighted average of the NAIRUs of the demographic groups, with the groups' labor force shares used as the weights. Note that the NAIRU for married males and for each of the other demographic groups is constant during the sample; the overall NAIRU varies over time only because shares of the labor force change over time.

Issues in Estimating the NAIRU

The most important estimation issue is what measure of inflation to use. There are several choices: implicit deflators, fixed-weighted price indexes, and

---

2. For other estimates of the NAIRU, see R.G. Gordon, "Inflation, Flexible Exchange Rates, and the Natural Rate of Unemployment," in M.N. Baily, ed., *Workers, Jobs and Inflation* (Washington, D.C.: Brookings Institution, 1982); S.E. Weiner, "New Estimates of the Natural Rate of Unemployment," *Economic Review*, Federal Reserve Bank of Kansas City (Fourth Quarter 1993), pp. 53-69; and S.N. Braun, "Productivity and the NIIRU (and Other Phillips Curve Issues)," Working Paper 34 (Federal Reserve Board of Governors, June 1984).

3. CBO breaks the labor force down by sex, race (white/nonwhite), and age (16-19, 20-24, 25-34, 35-44, 45-54, 55-64, and 65 and over).

several alternative price indexes. Using an implicit deflator, such as the implicit GDP deflator, is inappropriate because it measures not only changes in prices but also changes in the mix of purchases. Thus, the series could show a decline in inflation not because the growth of prices slowed, but because consumers shifted their spending to goods with prices that had increased less since 1987.

A fixed-weighted index, such as the fixed-weighted GDP price index, is a purer measure of inflation because it computes the change in the prices of a fixed market basket of goods. It therefore avoids the main problem associated with implicit deflators. However, it also has shortcomings, two in particular.

First, the index is likely to provide a misleading picture of inflation for years that are far removed from the base year, because the pattern of spending is locked to that in the base year. The current base year, for example, is 1987; goods whose share of consumer and business expenditures has increased during the postwar period will be weighted too heavily in the index early in the sample, because the index assumes a mix of purchases from 1987. The opposite holds true for goods whose expenditure share has decreased through time--they will be underrepresented early in the sample.

Second, the entire history of the series changes when the base year changes, which happens when the Bureau of Economic Analysis (BEA) rebenchmarks the national income and product accounts (NIPAs). Since the rate of unemployment is not subject to such revision, the entire relationship between inflation and unemployment changes each time the NIPAs are rebenchmarked. The problem is particularly acute for early years in the sample, because they are farther away from the base year.

Perhaps the best measure of inflation to use is a price index whose weights change, but only infrequently during the data sample. Year-to-year changes in such an index would reflect only changes in prices (not changes in the spending mix), but the weights ·r any given year would never be too different from the actual pattern of spending for that year. By this criterion, the CPI-U (the consumer price index for all urban consumers) seems to

be a good candidate.[4] However, the CPI's weights are somewhat out of date since they derive from surveys performed between 1982 and 1984. CBO therefore uses one of BEA's alternative price indexes for gross domestic product, the benchmark-years-weighted price index.[5] The advantage of this index is that its weights change infrequently during the postwar period, roughly every five years when BEA rebenchmarks the NIPAs. Values of the index in years since 1987 (the most recent base year) incorporate weights computed from expenditure shares in 1987 and in the last year of the sample, which is now 1993. Thus, although post-1987 values of the index are subject to revision until the next rebenchmarking, more distant history is not.

Besides the benchmark-years-weighted price index for GDP, CBO estimated NAIRUs using four other measures of inflation to gauge the sensitivity of the results. The other inflation measures are the benchmark-years-weighted price index for personal consumption expenditures (PCE), the CPI-U, the fixed-weighted PCE price index, and the fixed-weighted price index for PCE less food and energy. Fortunately, the estimates of the NAIRU computed using these different measures of inflation all clustered in a small range.

The foregoing discussion ignores the CPS revision introduced in January 1994 because all of CBO's NAIRU estimates use the old definition of the unemployment rate. The Bureau of Labor Statistics reckons that, during 1993 (when it conducted a trial survey on the new basis alongside the existing CPS), the unemployment rate derived from the new survey was, on average, about one-half of a percentage point higher than that derived from the old survey. However, recent movements in the unemployment rate suggest that the trial survey may have given a misleading impression of the actual

---

4. CBO's version of the CPI-U avoids the inconsistency (caused by a change in the treatment of h·   ·nership in 1983) that distorts the official series.

5. See A.H. Young, "Alternative M· ·ures of Change in Real Output and Prices: Quarterly Estimates for 1959-92," *Survey of Current Business* (March 1993), pp. 55-61; A.H. Young, "Alternative Measures of Change in Real Output and Prices," *Survey of Current Business* (April 1992), pp. 32-48; and J.E. Triplett, "Economic Theory and BEA's Alternative Quantity and Price Indexes," *Survey of Current Business* (April 1992), pp. 49-52.

impact of the change in survey method on the un-employment rate. Recent evidence indicates that the difference is smaller than previously thought--perhaps as small as one-tenth of one percentage point. CBO adjusts its estimate of the NAIRU by one-quarter of one percentage point (see Box 1-1 in Chapter 1 for more details).

Results of the Estimation

CBO's Phillips curve estimates yield good results--the equations fit the data well and satisfy a range of standard diagnostic criteria (see Table B-1). One aspect of the estimates deserves specific mention. In order to solve such equations for the NAIRU, the coefficients on lagged values of inflation must add up to one. In CBO's equations, the sum of the inflation coefficients is constrained to equal one. This constraint was tested statistically and was found to be justified in each equation at conventional levels of significance.

More important, the estimates of the NAIRU calculated from the different equations are all close to one another. CBO's preferred equation (using the benchmark-years-weighted price index for GDP) yields an estimate of the NAIRU for married males of 3.55, which implies an overall NAIRU of about 5.8 percent in 1993. Once it has been adjusted for the new CPS, the estimate of the NAIRU is 6 percent in early 1994. The estimates computed from the equations that use alternative measures of inflation are all within two-tenths of a percentage point of the first estimate. The estimate of the married-male NAIRU from the equation using the benchmark-years-weighted PCE price index is 3.63, that from the CPI-U equation is 3.72, that from the fixed-weighted PCE price index is 3.69, and that from the fixed-weighted price index for PCE less food and energy is 3.64.

Table B-1.
Estimated Coefficients from Phillips Curve Regressions to Determine the NAIRU

Independent Variables	Dependent Variable: Inflation				
	Benchmark-Years-Weighted Price Index (GDP)	Benchmark-Years-Weighted Price Index (PCE)	CPI-U	Fixed-Weighted Price Index (PCE)	Fixed-Weighted Price Index (PCE less food and energy)
Constant	2.45	2.50	2.87	2.67	1.92
	(5.2)	(4.4)	(5.0)	(5.5)	(5.3)
Lagged Inflation[a]	1.0[b]	1.0[c]	1.0[b]	1.0[b]	1.0[d]
Lagged Unemployment Rate (Married males)[e]	-0.69	-0.69	-0.77	-0.72	-0.53
	(5.4)	(4.5)	(4.9)	(5.5)	(5.4)
Food and Energy Prices[f]	0.19	0.43	0.43	0.34	n.a.
	(1.7)	(2.7)	(2.6)	(2.7)	
Productivity Deviation[g]	-0.10	-0.13	-0.06	-0.13	-0.10
	(2.9)	(2.8)	(1.3)	(3.4)	(3.0)
Wage and Price Controls On[h]	-0.75	-1.19	-1.83	-1.25	-1.37
	(1.3)	(1.5)	(2.2)	(1.8)	(2.3)
Off[i]	3.19	1.17	0.99	1.62	2.34
	(6.6)	(1.7)	(1.4)	(2.7)	(4.3)
R-Bar Squared	0.82	0.75	0.76	0.80	0.83
Number of Observations	117	119	152	152	152

SOURCE: Congressional Budget Office.

NOTES: T statistics appear in parentheses below coefficients.

NAIRU = nonaccelerating inflation rate of unemployment; GDP = gross domestic product; PCE = personal consumption expenditures; CPI-U = consumer price index for all urban consumers; n.a. = not applicable.

a. In each equation, lagged values of inflation are assumed to follow a third-degree polynomial distributed lag, with the far end point restricted to zero.

b. Lag length is 20 quarters.

c. Lag length is 18 quarters.

d. Lag length is 12 quarters.

e. Four lagged values of the unemployment rate for married males.

f. One period lag of food and energy prices; defined as the difference between the rates of growth of the fixed-weighted price index for PCE and the fixed-weighted price index for PCE less food and energy.

g. The difference between the rates of growth of labor productivity in the nonfarm business sector and trend labor productivity. The trend variable is segmented trend; its rate of growth is constant between business cycle peaks but differs between business cycles.

h. A dummy variable designed to control for the imposition of wage and price controls in 1971. (It equals 0.8 for the five quarters between 1971:3 and 1972:3.)

i. A dummy variable designed to control for the termination of wage and price controls in 1974. (It equals 0.4 in 1974:2 and 1975:1 and 1.6 in 1974:3 and 1974:4.)

Major Contributors to the Revenue and Spending Projections

T he following analysts prepared the revenue and spending projections in this report:

Revenue Projections

Mark Booth	Corporate income taxes, Federal Reserve System earnings, excise taxes
Drew McMorrow	Excise taxes
Peter Ricoy	Social insurance contributions, estate and gift taxes
Melissa Sampson	Customs duties, miscellaneous receipts
David Weiner	Individual income taxes

Spending Projections

Defense, International Affairs, and Veterans' Affairs

Elizabeth Chambers	Military retirement, defense
Kent Christensen	Defense
Christopher Duncan	International affairs
Victoria Fraider	Veterans' benefits, defense
Raymond Hall	Defense
William Myers	Defense
Mary Helen Petrus	Veterans' compensation and pensions
Amy Plapp	Defense
Kathleen Shepherd	Veterans' benefits
Lisa Siegel	Defense
Joseph Whitehill	International affairs

Human Resources

Wayne Boyington	Civil Service Retirement, Social Security
Scott Harrison	Medicare
Jean Hearne	Medicaid
Lori Housman	Medicare
Julia Isaacs	Food stamps, foster care, child care
Deborah Kalcevic	Education
Lisa Layman	Medicare
Jeffrey Lemieux	Federal employee health benefits
Cory Oltman	Unemployment insurance, training programs
Pat Purcell	Supplemental Security Income, Social Security
Dorothy Rosenbaum	Education
Connie Takata	Public Health Service
John Tapogna	Aid to Families with Dependent Children, child support enforcement

Natural and Physical Resources

Kim Cawley	Energy, pollution control and abatement
Peter Fontaine	Energy, Outer Continental Shelf receipts
Mark Grabowicz	Science and space, justice
Theresa Gullo	Water resources, conservation, land management
James Hearn	General government, deposit insurance
David Hull	Agriculture
Mary Maginniss	Deposit insurance, Postal Service
Eileen Manfredi	Agriculture
Ian McCormick	Agriculture
Susanne Mehlman	Justice, Federal Housing Administration
David Moore	Spectrum auction receipts
John Patterson	Transportation
Deborah Reis	Recreation, water transportation
Rachel Robertson	Community and regional development, natural resources
Judith Ruud	Deposit insurance
Brent Shipp	Housing and mortgage credit
John Webb	Commerce, disaster relief

Other

Janet Airis	Appropriation bills
Edward Blau	Appropriation bills
Jodi Capps	Appropriation bills
Karin Carr	Budget projections, other interest
Betty Embrey	Appropriation bills
Kenneth Farris	Computer support
Glen Goodnow	Authorization bills
Leslie Griffin	Budget projections, civilian agency pay
Bryan Grote	Credit programs
Vernon Hammett	Computer support
Sandra Hoffman	Computer support

Jeffrey Holland	Net interest on the public debt, national income and product accounts
Deborah Keefe	Computer support
Fritz Maier	Computer support
Kathy Ruffing	Treasury borrowing, interest, and debt
Robert Sempsey	Appropriation bills